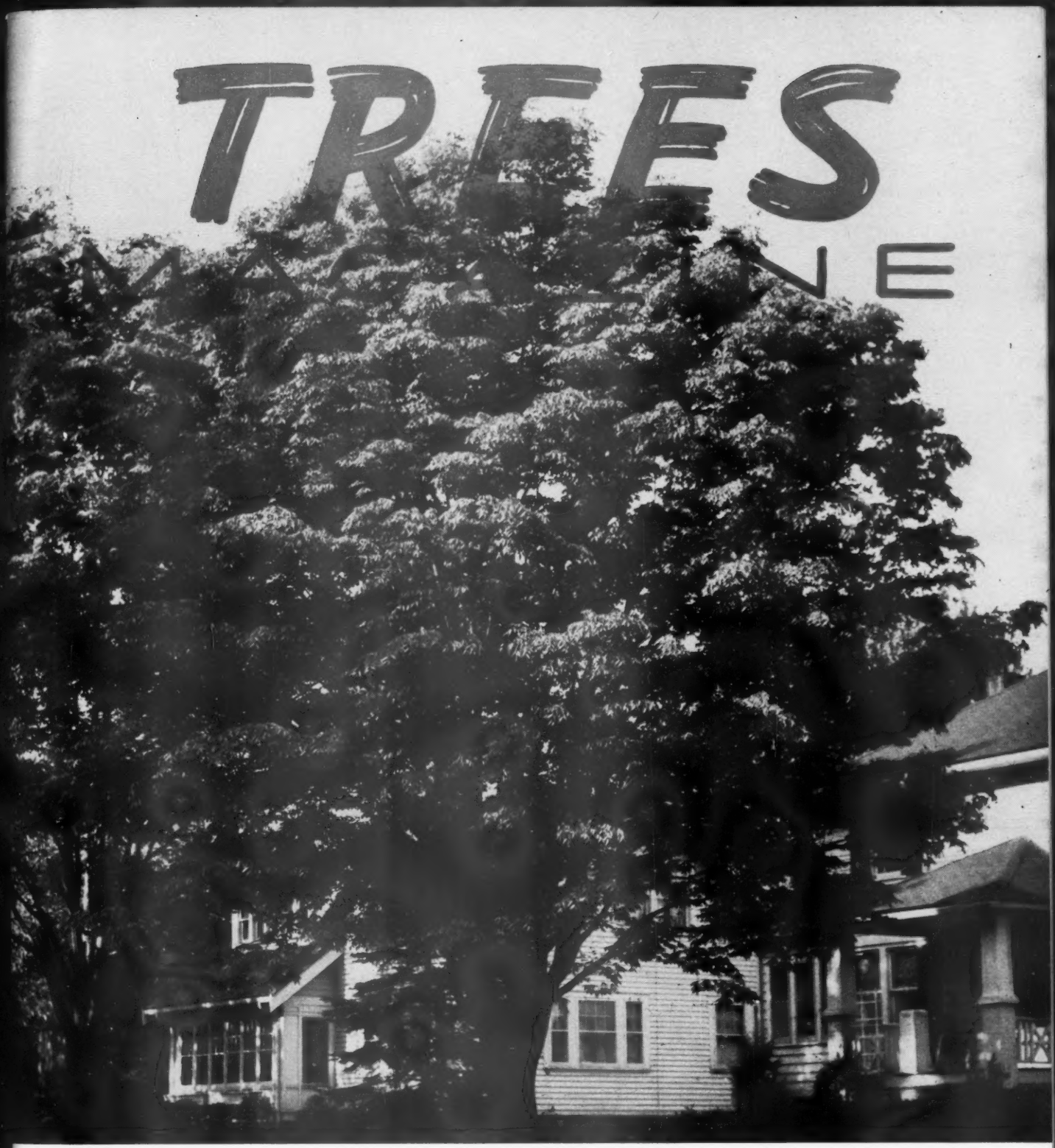
TREES MAGAZINE



Japanese Keaki—Zelkova serrata—The Perfect Replacement for the American Elm (page 5)

28th National Shade Tree Conference–Hotel Statler–Boston August 18-22, 1952

A Classification of Midwest Forest Types — *Kendall Laughlin*

America's Oldest Garden Cemetery — *Oakes I. Ames*

July-August, 1952 — *The Journal of American Arboriculture* — Vol. 12, No. 5

Ace in the Holes!

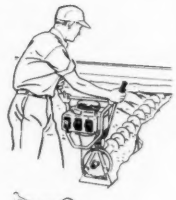
DIG POST HOLES *One-a-minute* WITH McCULLOCH EARTH DRILL!

boring . . . Because it will operate full power in all positions, the Earth Drill can be set up for boring under road beds, through hummocks, etc.

plain holes . . . Fence crews can average from 60 to 150 holes an hour with each McCulloch Earth Drill on the job.

angle holes . . . This tool can drill at any angle; it is easily portable over hills, through woods, across ditches.

The McCulloch Earth Drill, with special 5-hp or 7-hp gasoline engine, weighs only 79 pounds complete. Augers available: 6, 9, 12 in. diameter.



Do you need holes for fence posts, signboards, trees, plants, light poles, phone poles, pipes, culverts, soil testing, anode planting . . . deep holes, shallow holes, wide holes, narrow holes . . . holes vertical, horizontal, at any angle? Here's the *easy* way to dig them, with a *portable* McCulloch Earth Drill.

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In less than 1 minute, the Earth Drill can be converted into a McCulloch 7-hp chain saw, using standard attachment. Earth Drill attachment available for present owners of 2-man McCulloch chain saws.

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World's Largest Builders of Power Chain Saws

TREES Magazine is a bi-monthly Journal published at Cleveland, Ohio, by Edward H. Scanlon, and is devoted to the furtherance of the technical and business administration of Trees (Street and Ornamental); Parks (Municipal and National); and Forests (State, National and Private), in the U. S. Scanlon Publishing Co., P. O. Box 5607, Cleveland, Ohio. Subscription by mail $2 per year; outside United States, $2.50. Advertising rates upon inquiry. Closing date for advertising copy—10th of month preceding date of issue. Unsolicited manuscripts must be accompanied by return postage.

ALONG THE WAY

With . . .
EDW. SCANLON

■ Did YOU EVER SEE a GOLDEN SWEETGUM?—Well it's a BEAUTIFUL THING—a nice shade of GOLD THAT ALMOST COMPLETELY or partially diffuses a MAJORITY OF THE LEAVES. I have a DANDY at the RANCHO and hope to SELECT BUDS and eventually GET AN ENTIRELY CLEAR GOLD—maybe. Anyway its a TREE WITH BEAUCOUP CHARM.

■ **Our good friend HENRI DEN OUDEN of OLD FARM NURSERIES BOSKOOP HOLLAND, paid his ANNUAL VISIT several weeks ago. BOUGHT SOME rare Asiatic SMALL MAPLES from him, such as CARPINIFOLIUM, DAVIDII, MONSPESSULANUM and CAPILLIPES —also some PURPLE LEAVED WHITE BIRCHES, very lovely trees. ALL THE ART and masterpieces AREN'T IN ART MUSEUMS!**

■ WARNING to FITCHBURG, Mass. (or is it "berg") POLICE and CHARLIE SWEENEY, CITY FORESTER thereof: Anent (boing!) your warning to me, OF A YEAR AGO, to steer clear of FITCHBURG or else (just because I DIDN'T KNOW WHAT STATE IT WAS IN, can you beat it)—about 2 P. M. ON AUG. 17 I will HOP RIGHT OVER YOUR SPAVINED VILLAGE with the HELP OF UNITED AIR LINES (and a COUPLE NICE STEWARDESSES [aren't there a LOT OF ESSESES there]). GOODBY SWEENEY see you in BOSTON.

■ **A DIRECT QUOTE from a letter of KARL AMALIA on the BOSTON CLAMBAKE reads as follows: "No person should die until they have come to New England and enjoyed all the different kinds of fish, lobsters, clams and CORN that goes into a clambake"—WE ACCEPT NO RESPONSIBILITY for the fact that the GENERAL CHAIRMAN HIMSELF admits the CORN PART. Ugh!**

■ Don't let KARL'S HONESTY deter you from attending the NATIONAL SHADE TREE CONFERENCE in BOSTON, AUG. 18-22, and enjoying the CLAMBAKE—as well as THE OPPORTUNITY to see some EXCITING AND BEAUTIFUL TREES at the ARNOLD ARBORETUM and MOUNT AUBURN CEMETERY.

■ **The HOT WEATHER this summer seems to be CHANGING STEVE O'ROURKE'S MIND about GOING TO SOUTH AMERICA. Now he thinks HE MIGHT SETTLE DOWN on the MICHIGAN STATE CAMPUS and write a VERY BADLY NEEDED book on PLANT PROPAGATION. Get some DETAILS IN IT STEVE and it should be a honey—there's an OPPORTUNITY FOR AN EPIC.**

■ Incidentally the SHADE TREE CONFERENCE CLAMBAKE will be held at TUCKS POINT wherever that is. The MAESTRO OF THIS BURP MARATHON will be BILL HENDERSON—Bill hopes "THESE TOURISTS COME TO EAT ALL THIS STUFF."

■ **Had a note from ARNOLD BURNELL of MANKATO, MINN., that he is in HOT SPRINGS with a very UNPLEASANT MESS OF ARTHRITIS. Hope you LICK IT ARNOLD—maybe you had better GO BACK to CALIFORNIA.**

■ You will note on the ADVISORY COUNCIL of TREES the addition of MAUNSELL VAN RENSSELAER, Director of the new SARATOGA HORTICULTURAL FOUNDATION in California. The Foundation will have as its PRIMARY FUNCTION the SELECTION OF NEW STREET AND ORNAMENTAL TREES for the west. A story on the Foundation, by MILLARD BLAIR, will appear in an EARLY ISSUE of TREES. Hope YOUR'E THROUGH with THE FLU VAN.

■ **WILBUR SEUBERT of SIOUX CITY paid his FIRST VISIT TO A HOSPITAL recently—"paid" is right—WILL REPORTS HEAVY infestations of SPRING CANKERWORM there—on the increase SINCE 1949—but they are GETTING AHEAD OF IT WITH A NEW LAWRENCE AERO MIST SPRAYER.**

■ With all THIS HULLABALOO about the great NEW discovery—"CHLOROPHYLL"—don't be SURPRISED IF one of the FAST BUCK NURSERIES, that go for the PHONY ADVERTISING, doesn't announce that their "WONDER TREES NOW CONTAIN THAT MIRACLE DRUG CHLOROPHYLL."

■ **DICK POTTER of Marysville, Calif., sent along what he calls an "OUT-ON-A-LIMB" tie—SHOWS A GUY out on a limb — SUPPOSEDLY SCANLON — thanks DICK, I'll wear it tenderly.**

■ PETE CASCIO the WEST HARTFORD, CONN., nursery boy, and TREE MOVER—wait till you see the STORY AND PIX in the NEXT ISSUE on PETE'S TREE MOVING—well anyway PETE WAS ELECTED PRESIDENT OF THE AMERICAN ASSOCIATION OF NURSERYMEN at the DETROIT meeting just concluded. QUITE AN HONOR for QUITE A GUY.

■ **The PLANT PROPAGATORS' SOCIETY was formally organized in DETROIT at the A.A.N. convention. JIM WELLS of the Koster Nursery was elected president; LOUIE CHADWICK, OSU, vice president and EHS of ATW, Secretary-Treasurer. A meeting will be HELD IN CLEVELAND DEC. 5-6. Membership in the NEW ORGANIZATION will be by invitation.**

■ The NSTC IN BOSTON will have as UNEXPECTED, but VERY WELCOME, guests ROSS AND MRS. McINTIRE, president of the WESTERN CHAPTER. They have PROMISED TO STOP at the RANCHO on their return and help us ENJOY THE DROUGHT.

■ **Had a PLEASANT VISIT at the RANCHO, after the NURSERYMEN'S CONVENTION, with BILL AND FRED STENSSON and MR. HOWARD GRUBB of the SHERIDAN NURSERIES, SHERIDAN, ONTARIO. They SAW THE LATEST in lawns — SADDLE BROWN BLUE GRASS.**

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Vol. 12 Bi-Monthly No. 5

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(Foreign $2.50) 35 Cents Per Copy
TREES MAGAZINE
Box 5607, Cleveland 1, Ohio

The Editors of TREES invite discussions, comments and all types of literary materials pertaining to trees and tree preservation from any person engaged either in the scientific advancement or commercial development of the field.

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■ DICK FILLMORE, formerly of the ARNOLD ARBORETUM is now with MOUNT ARBOR NURSERIES at SHENANDOAH, IOWA.

■ **The ELDER STATESMAN of Idaho, DAVE PETRIE, hitched a ride from DETROIT TO CLEVELAND with FRANK AND BERNIECE DONOVAN (McGILL NURSERY). DAVE WOKE US UP BEFORE BREAKFAST with the CLUMP OF HIS HOE on some of my BEST WEEDS. He brought us GOOD LUCK in the form of a 3-HOUR RAIN —not much, but MORE THAN WE HAD had for six weeks. COME AGAIN DAVIE.**

■ Now all you GUYS BE GOOD LITTLE BOYS and hie yourselves AWAY TO BOSTON to a nice SHADE TREE CONFERENCE and a good bunch of entertainment. KARL AMALIA, the general chairman, HAS BEAT HIS BRAINS OUT working up a nice meeting—LETS SHOW him it was NOT IN VAIN.

■ **YIPE — here's the CHLOROPHYLL STORY that SHOULD END them all— a certain MATTRESS COMPANY is advertising that THEIR PRODUCT contains chlorophyll "nature's wonder chemical to give you the newest in sound, hygienic sleep." — HOW ABOUT BICYCLE SEATS.**

■ A wanderer, far afield, from the recent AAN convention, at the Rancho, was Andy Tures of Matt Tures & Son Nursery, Des Plaines, Ill. Andy spent a day in Rochester's beautiful D-E Park.

July-August, 1952 **Journal of the National Arborist Association** Vol. 12, No. 5

EDWARD H. SCANLON, Editor
7621 Lewis Rd., Olmsted Falls, Ohio
ADams 5-2357

"No place is complete without trees. A home without trees is charmless; a road without trees is shadeless; a park without trees is purposeless; A COUNTRY WITHOUT TREES IS HOPELESS."

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University of California, Berkeley, Calif.

Out On A Limb

GET THE SHADE TREE CONFERENCE HABIT

If you have never attended a National Shade Tree Conference—why not? Hundreds of arborists, nurserymen and city foresters, some for almost a quarter of a century, have found it stimulating and educational enough that they have not missed a meeting in that period.

The National Shade Tree Conference will hold its 28th annual convention in Boston, August 18-22. An active committee headed by Karl Amalia, arborist of Manchester, has been working faithfully to assure you of all the comforts of home, a highly entertaining and educational visit to historic Boston, and a technical program of the latest developments of the year in tree management. In addition there will be displayed the finest tools, equipment and materials manufactured in this country. Then there will be field demonstrations of equipment such as mist and hydraulic sprayers, brush chippers, chain saws, tree movers and other such equipment so necessary to do a good job. On top of all this there will be "Amalia's Clambake" at Tucks Point. We're sure Karl will do his usual thorough job in this entertainment feature and look forward with much interest to this diversion.

So all in all, if you work with trees in any way—treat them, sell them or plant them, or if you just plain like them we know you will find a National Shade Tree Conference not just a convention in the usual sense, but rather it will be an experience you, like so many others, will repeat each year come August and another Shade Tree Conference.

SUPPORT THE ADVERTISERS FOR A BETTER TREES MAGAZINE

It is hoped that before you started to read this piece you had an opportunity to read each of the ads—which constitute the nicest group of advertisers ever to appear in a single issue of TREES Magazine.

Do not take this advertising representation as a tribute to this magazine—it isn't—rather it is recognition by these business firms of the fact that the readers of TREES Magazine constitute a very firm and sound segment of American business, cultural and professional life. They want your business and we hope you will give it to them.

This of course is the National Shade Tree Conference convention issue of TREES Magazine and accounts for the increase, over normal, of the number of advertisers. With this fine representation of reputable firms seeking your business, we have tried to give you an interesting and informative issue. This issue is an example what every issue can be if thru your support of the advertisers we can woo them into representation in each of the six bi-monthly issues of TREES Magazine. Advertising makes for a healthy publication but only you with your buying support can keep that advertising

coming back issue after issue—and when you order tell them you appreciate their support of TREES Magazine.

Altho we are very pleased with the advertiser representation in this convention issue, and want to take this opportunity to thank the committee members of the Boston conference for their efforts in stimulating advertisers, there are still a considerable number of firms, that should advertise consistently in this Journal of American Arboriculture. Some business firms have the impression that because the dominant topic of this publication is trees and their care that therefore the only products we use are saws and tree paint, or nearly so. Nothing could be further from fact.

The subscription list of TREES Magazine contains the leading, and most all arborists, it is true; in addition large and small nurseries are being added daily in healthy numbers; practically every city of any consequence subscribes thru its Park department, and its City Forestry or Shade Tree department; landscaping firms, cemeteries, universities and governmental agencies fill out the files to give TREES Magazine probably as fine a cross section of representation in all fields of horticultural endeavor as that enjoyed by any publication in the country. Trees is a universal subject that has the interest and love of all regardless of the particular branch of horticulture in which he may specialize. With this wide range of reader appeal the field for advertising representation is broad indeed—tractors, tillers, trucks, trees, shrubs, evergreens, roses, flowers, spray materials, peat humus, plant markers, hand tools, sprayers, rope and dozens of other items used in the broad field covered by these various branches of horticulture are in constant demand by the readers of TREES Magazine.

We are grateful to the faithful readers who have supported our advertisers over the years and we know you will keep up the good work. We ask others to give a hand and suggest to firms they do not see represented, and from whom they now buy, to give TREES Magazine a chance.

In return we'll do our best to make the magazine better and better. We'll see you in Boston and don't forget to visit the booths of the advertisers and to buy their products.

The Cover Picture

This beautiful specimen of Zelkova Serrata is proof positive that a wonderful species has been overlooked in the dark age that trees have endured in this country for so long. This specimen is one of a row of six planted on West 228th Street in Fairview Village, a suburb of Cleveland, Ohio.

The Zelkova is a genus of the Elm Family but is *resistant to Dutch Elm disease.* Its tendency to grow in a rather compact fountain form, the slightly reddish tinge of its foliage in fall, and its smooth beech-like bark make it one of our most desirable trees. A number of streets have been planted to Zelkova by the Cleveland Division of Shade Trees, and many thousands of trees are being grown by the Division for wider use of this tree of charm. Here is an elm, to all intents and purposes, that admirably fits the role of a substitute for the American elm—in fact, in the writer's opinion it is a superior tree in every respect to the American elm.

E.H.S.

What—Where—When

Ohio Nurserymen's Association (summer meeting), The Rieger Hotel, Sandusky, Ohio. Aug. 12-14.

* * * *

National Shade Tree Conference, Hotel Statler, Boston, Mass., Aug. 18-22.

* * * *

Northern Nut Growers Association, Rockport, Indiana, Aug. 25-27.

* * * *

American Institute of Park Executives, Montreal, Canada, Sept. 15-19.

Plant Propagators Society Begins

At a meeting in Detroit, held during the annual convention of the American Association of Nurserymen, the Plant Propagators Society was formally established with the adoption of a constitution, election of officers and selection of a date for the second annual meeting.

The Society, which had its first meeting in Cleveland, November 9th, 1951, unanimously elected James S. Wells, Koster Nursery, Bridgeton, N. J., as President; Dr. L. C. Chadwick, Head of the Department of Horticulture, Ohio State University as Vice President; and

JAMES S. WELLS,
President, Plant Propagators Society

Edward H. Scanlon, Editor TREES Magazine as Secretary-Treasurer. To speed up the organization process seventeen charter members were declared as the nucleus about which to set up the necessary constitution and election of officers. The constitution adopted stressed that members will be invited to join on the basis of their knowledge and experience in the art and science of plant propagation and their willingness to exchange their knowledge with others. This is the backbone of the Society and it was agreed the Membership Committee should thoroughly screen all prospective members carefully for these attributes. It was agreed the Society fills a badly needed place in the profession of horticulture and it must be kept on a high plane.

The second annual meeting will be held in Cleveland, December 5-6, 1952. The first day will be given over to closed sessions for members and the second day will feature papers by outstanding authorities in the field of propagation.

Orchardair Mist Sprayer
Mounted on 2-wheel high-clearance trailer. Used occasionally during two seasons. Priced for quick sale, $780.00.
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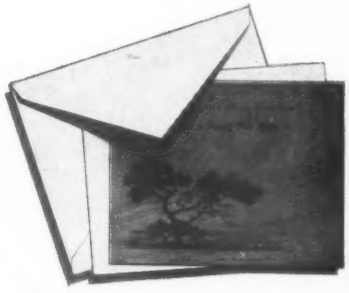

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Program—28th National Sha

On August 18th there will be convened in Boston, Massachusetts, the 28th National Shade Tree Conference. All sessions will be held in the Hotel Statler.

The history of this shade tree meeting goes back to August 25-26, 1924, when at the invitation of the Connecticut Tree Protection Association a meeting was held in Stamford to discuss the tree

NOEL WYSONG,
President,
National Shade
Tree Conference

problems of the day. The meeting at Stamford was so successful that it was unanimously decided to make it an annual affair. The name of National Shade Tree Conference came into use several years later. About sixty persons attended the first meeting in Stamford. Today the membership exceeds 1200 arborists, nurserymen, city foresters, landscape architects and others interested in the improvement and management of shade trees.

This is the third Conference held in historic Boston. The first was in 1936. Ten years passed before the Conference again passed thru Boston in 1946; now for the third time we have the good fortune to be able to visit this interesting city that is also the home of America's greatest tree garden, the Arnold Arboretum.

High on the agenda of this year's meeting will be the special day set aside for a visit to the Arnold Arboretum. This oversight during the 1946 meeting was recognized as a regrettable error after many had voiced the wish that they could have spent more time looking at the priceless collection of trees rather than to have to spend the time at the Arboretum watching the field demonstrations of equipment. The demonstrations are a highlight of the meeting, showing the latest improvements in sprayers, tillers, chain saws and other necessary equipment, however some settled for the demonstrations, some chose to use the few hours to look at the trees. This year an entire day will be devoted to the Arboretum.

On Wednesday afternoon, Aug. 20 at Tucks Point the 2nd annual National Tree Climbing Contest will be held. This contest that received such a favorable reception from a huge throng at Cincinnati last year is bound to steal the show on this afternoon's outing altho Karl Amalia assures us they will not have to rechristen Tucks Point to "Ulcer Gulch" after the gastronomic marathon he has spent weeks in preparing. "Karl's Klambake" should be a gourmets delight.

The technical and scientific papers on this year's program are timely and will be presented by a number of speakers, each eminently well fitted for his particular subject.

The Municipal Shade Tree Management section on Tuesday night, Aug. 19 will be ably led by Harry Turner, City Forester of East Orange, N. J. As usual this will be one of the most interesting and liveliest sessions of the entire conference.

You are urged, for your own sake, not to miss a minute of this the finest of all horticultural meetings held in the United States. You'll never regret it.

TWENTY-EIGHTH
NATIONAL SHADE TREE CONFERENCE
CONVENTION

Hotel Statler, Boston, Massachusetts
August 18-22, 1952

All sessions held in the Ballroom, Mezzanine Floor, unless otherwise stated.

Monday, August 18
Eastern Daylight Saving Time
A. M.
9:00—Registration—Mezzanine Floor
Visit the Commercial Exhibits
10:00—Meeting of National Arborists Association—Ballroom
P. M.
1:30—Registration—Mezzanine Floor
Visit the Commercial Exhibits
Meeting of National Arborists Association—Ballroom
Evening
6:30—Meeting of Executive Committee—Hancock Room, Mezzanine Floor
8:00—Informal Party, sponsored by the Massachusetts Arborists Association

Tuesday, August 19
A. M.
8:00—Registration—Mezzanine Floor
9:45—Official Opening of the 28th Convention—Pres. Noel B. Wysong, presiding
Invocation
Address of Welcome
Appointment of Convention Committee
10:45—"Business Trends and What They Indicate for the Future"—Earl L. Smith, Director of Advisory Dept., Babson's Reports, Inc., Wellesley Hills, Massachusetts
11:15—"Training Qualified Arborists"—Prof. Gordon S. King, University of Massachusetts, Amherst, Massachusetts
P. M.
1:30—Business Session. Open to all members. Pres. Wysong, presiding

28th ANNUAL CONVENTION

HOTEL STATLER—BOSTON, MASSACHUSETTS—AUGUST 18-22, 1952

General Chairman:
Karl F. Amalia, Amalia Tree Surgeons, Inc., 9 Bridge Street, Manchester, Massachusetts

Committee Chairmen:

Trade Exhibits—Wilfrid Wheeler, Jr., Bartlett Tree Expert Co., 795 Memorial Drive, Cambridge, Massachusetts

Publicity—J. Cooke White, Fred Ralston & Co., 22 Linden Street, Boston 34, Massachusetts

Educational Exhibits—Donald Wyman, Arnold Arboretum, Jamaica Plain, Massachusetts

Contests—R. D. Lowden, 1274 Great Plain Avenue, Needham, Massachusetts

Transportation—John Duffy, Hartney Tree Surgeons, Inc., Ash Street, Weston, Massachusetts

Properties—William Rae, Jr., Frost & Higgins Co., 20 Mill Street, Arlington 74, Massachusetts

Entertainment—William Henderson, Henderson & Herndon Tree Company, Beverly, Massachusetts

Ladies Program—B. L. Brittain, Davey Tree Expert Co., 3 Newbury Terrace, Newton, Massachusetts and Temperance Oakes Guptill, Concord Road, Sudbury, Massachusetts, Co-chairmen

a de Tree Conference—Boston

Roll call of members of Board of Governors
Nomination and election of Executive Committee members from Regions 2, 4 and 6
Nomination and election of Membership Committee members from Regions 2 and 5

KARL AMALIA,

General Chairman, National Shade Tree Conference

Report of the Executive Committee — L. C. Chadwick, Secretary
Report of the Budget Committee—Paul E. Tilford, Chairman
Report of the Secretary—L. C. Chadwick, Dept. Horticulture, Ohio State University, Columbus, Ohio
Report of the Treasurer—L. C. Chadwick, Treasurer
Report of the Editor—Paul E. Tilford, Executive Secretary, National Arborists Association, Wooster, Ohio
Old Business
New Business

2:45—"Krilium—Its Use in Arboriculture," Dr. W. P. Martin, Department of Agronomy, Ohio State University, Columbus, Ohio.

3:30—"The Making and Use of Rope" (illustrated) — Robert S. Snyder, New Bedford Cordage Co., New Bedford, Massachusetts

4:15—Plant Clinic—Answers to Your Questions — In charge, Dr. Spencer H. Davis, Department of Plant Pathology, New Jersey Agricultural Experiment Station, New Brunswick, N. J.

Evening

7:00—Dinner and Meeting of the National Arborists Association—Georgian Room, Mezzanine Floor

8:00—Municipal Arboriculture and Forestry — Meeting of City Foresters, Park Superintendents and others interested in Public Area Tree Management Problems—Ballroom
Discussion Leader: Harry E. Turner, Secretary, Shade Tree Commission, East Orange, New Jersey

Wednesday, August 20

A. M.

Session Chairman—Edward W. Higgins, Past President, National Shade Tree Conference, presiding

9:30—"Birch Leaf Miner and Its Control"—Dr. William W. Cantelo, Bartlett Tree Research Laboratories, Stamford, Connecticut

10:00—"Roadside Brush Control—An Application of Plant—Community Management"—Dr. Frank E. Egler, Consulting Vegetationist, Aton Forest, Norfolk, Connecticut

11:00—Visit the Commercial and Educational Exhibits

P. M.

—An Afternoon at Tuck's Point, Manchester, Massachusetts
New England Clam Bake
Tree Climbing Contest
Other Contests
Swimming and Boating
Games

Evening

8:00—Meeting of the Public Utility Arborists — Karl Kuemmerling, Chairman, Bay State Room, floor below Lobby

Thursday, August 21

A. M.

9:30—Business Meeting. Open to all Members. Pres. Noel B. Wysong, presiding
Roll Call of members of Board of Governors
Committee Reports:
Memorial Research Fund Committee — Dr. Curtis May, Division Forest Pathology, U.S.D.A., Beltsville, Maryland.
Slide Library Committee—R. K. Alman, Cedar Rapids, Iowa
Nomenclature and Standards Committee — Oscar F. Warner, Landscape Forester, Waterbury, Connecticut
Shade Tree Evaluation Committee — Norman Armstrong, Chapel Hill, North Carolina
Public Utility Arborists Committee — Karl Kuemmerling, Forester to Public Utilities, Canton, Ohio
Shade Tree Selection Committee—Edward H. Scanlon, Commissioner, Division of Shade Trees, Cleveland, Ohio.
Report of Convention Committees
Election of Officers
Selection of 1954 Convention City
Old Business
New Business

10:45—Educational Session — Dr. George Langford, Vice President, National Shade Tree Conference, presiding
"Some New England Insects and Diseases of Shade Trees and Their Control"
Discussion Leader: Dr. Malcolm A. McKenzie, Director, Shade Tree Laboratories, University of Massachusetts, Amherst, Massachusetts
Others: Dr. David H. Marsden, Shade Tree Laboratories, University of Massachusetts
Dr. Philip L. Rusden, Shade Tree Laboratories, University of Massachusetts
Prof. William E. Tomlinson, Shade Tree Laboratories, University of Massachusetts

P. M.

—Session Chairman, Noel B. Wysong, President, National Shade Tree Conference

1:45—"English Gardens and the Woody Plants that Make Them" — Dr. Donald Wyman, Horticulturist, Arnold Arboretum, Jamaica Plain, Massachusetts

2:30—"What Makes a Star Salesman Tick" — Jack Lacy, Lacy Sales Institute, Newton Centre, Massachusetts

3:30—"Living with the Dutch Elm Disease"—A. W. Hurford, Secretary and Forester, Connecticut Forest and Park Association, New Haven, Connecticut and—Edgar G. Rex, State Department of Agri-

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PLANT AMERICA—WISELY

Trees of The Arnold Arboretum

By Donald Wyman,
Horticulturist, The Arnold Arboretum

The members of the National Shade Tree Conference do not have to be informed that trees of any country are its most valuable natural resource, but they may not realize that there are nearly 2,500 different kinds actually growing in the Arnold Arboretum. This great number includes almost as many trees from Asia and Europe as it does trees native of America. Not all are of value as ornamentals but visitors to the Shade Tree Conference this summer in Boston, could well spend some time looking over the plants in these world-famous collections.

As members of the conference visit the Arboretum this summer, they should be interested in knowing that they can be given a permit to drive through the grounds any time from 9 to 5 on Mondays through Fridays. Normally motor traffic through the grounds is prohibited. If the visitors will stop at the Administration office by the Jamaica Plain gate (which is the gate nearest town) they will be given the permit necessary. Otherwise, the grounds are open from sunrise to sunset every day of the year. A map of the grounds (also obtainable at the office in the Administration Building) might be useful in showing just where the main collections are.

All the plants are supposed to be labeled with two kinds of labels, one showing the record number and source of the plant, the other larger label showing the scientific name, common name and habitat. As is true in all public plantings, some of the labels will be found missing, but most are on the plants where they ought to be.

Some of the trees are 200 years old. We know that because we have counted the rings in some of the large hemlocks on Hemlock Hill that were blown down in one of the recent hurricanes. There are one or two mighty oaks that may be near that age. Then there are others at ages varying from that extreme to some of the six foot saplings that have been planted in the collections this past spring. Less than one-half of the trees growing in the Arboretum are native to America. About as many are native of China, Japan and Korea, while one-sixth of the total is native of Europe. Practically none are from South America, although we have seedlings of several South American species in the test plots at Weston which are being tried for hardiness.

There are many maples that make good street trees and good ornamental specimens as well and we are growing 130 different kinds. A walk through this collection will be very worth while, for it will be here that "new" types of small trees can be found for street tree work. Among the maples will be found some that are not propagated commercially yet, although they well warrant it. The linden collection boasts 33 different kinds and the elm collection, 66. We are doing everything we can to keep this collection in good growing condition, for the Dutch Elm disease has reached the boundaries of the Arboretum.

There are 80 oaks, not all of them good ornamentals nor all of them completely hardy in this climate. Over the years, we are gradually trying to eliminate from our collections plants that are known to be slightly tender in this latitude. It used to be that such plants were grown, but space is becoming limited and also, it seems more and more advisable to grow, care for and properly display only those plants which are com-

The famous Sentry Sugar Maple in the Arnold Arboretum. Over 50 years old and 50 ft. tall.

Patronize the Advertisers — Mention TREES

A magnificent specimen of Oxydendrum Arboreum in full bloom. Its fall color is sensational. A fine tree that should be more widely used.

pletely hardy during most winters.

One of the two largest collections of flowering crabapples in the world will be found in the Peter's Hill area, where over 200 species and varieties of crabapples are growing. Many more seedlings, as yet unnamed, are growing in the nurseries. Only a few of these trees will be of interest in August for the fruit of most will not be colorful until several weeks after convention time.

There are many interesting evergreens. The pine clan boasts 63 kinds while there are 90 different spruces. This large number is made up of a goodly representation of the dwarf varieties of the Norway Spruce, which can be seen in the bed of dwarf conifers. Some of these specimens are 50 years old and are still growing well.

Of course there are many interesting stories connected with the introduction of these plants into America, or the finding of new clones here. The Cedar of Lebanon is often used to illustrate the old adage that persistence pays—even in collecting plants. The Arboretum was established in 1872, and for 25 years its first director, Charles Sprague Sargent, tried to establish plants of *Cedrus libani,* only to have them killed every severe winter. So, in 1903 he made arrangements with some seed collectors in Asia Minor to make a special trip high up in the mountains where this particular cedar was native, and to collect seeds only from trees growing on the highest mountains and in the most exposed places. This seed germinated and grew in the Arboretum and has provided us with a strain that is completely hardy in even our most severe winters. We have collected the seed by the bushel and distributed it to commercial growers in the hopes that this hardy strain would be introduced to gardeners all over the northern United States.

Growing nearby our grove of *Cedrus libani,* is a plant of the Silk Tree which E. H. Wilson sent back from Korea in 1918. He found a plant growing in a hotel yard hundreds of miles north of where it was normally hardy. On a chance, he collected seed from this individual tree, sent it to the Arboretum and one of the resulting seedlings has been growing here ever since. Prior to this time, seedlings of *Albizzia julibrissin rosea* from the south had been grown here on many an occasion, but all eventually succumbed in very cold winters. Not so this clone. It is old now, and in very poor condition, but visitors here this summer will see it in full bloom, making one of the most conspicuous displays in the entire Arboretum throughout the summer months.

Sometimes a plant grows here for many years without being "found" by the nursery trade. Such a plant was *Kolkwitzia amabilis,* growing here for 15 years before one nursery became sufficiently interested in it to propagate it on a large scale. Now it is easily available all over the country.

A tree which has not yet found much favor is the Sentry Maple, *Acer saccharum monumentale.* Our specimen has been growing here for over fifty years, is nearly 50 feet tall and thousands of motorists pass within a hundred feet of it every hour during daylight, yet it is practically unavailable. True, it is slower in growth than the upright forms of the Norway maple, but nevertheless it makes an excellent tree requiring little maintenance the year 'round.

The Dwarf Alberta Spruce *(Picea glauca conica)* is an example of how chance plays a major part in a new "find." Professor Alfred Rehder and Professor J. G. Jack, both of the Arboretum staff, had been on a botanical collecting trip together in 1904. At a little station in southwestern Canada, they missed their train one day and, to pass the time wandered off in the woods together for the several hours before the next train. This trip was more profitable than the entire rest of the trip for they found on this short stroll four little plants of the Dwarf Alberta Spruce in the forest, and sent all of them

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The Birch Leaf Miner

Several varieties of birch are attacked by the larvae of a small wasp with the scientific name *Fenusa pusilla* Klug. The larvae feed between the upper and lower epidermis causing large blotch-shaped irregular mines. One leaf may have 15 to 20 larvae resulting in the leaf being one big mine. The winter is passed in the larval stage in small cells in the ground. They pupate in the spring and adults begin to emerge shortly after the first new leaves develop. At New Brunswick this has been between the first and the middle of May. Eggs are laid in the leaf tissues and hatch in six to 10 days. The emergence or egg laying period may last over three weeks.

Control of the adult is difficult since residual type sprays are not effective against the adults. The writer used benzene hexachloride, containing 5% gamma isomer, at the rate of 10 pounds to 25 gallons of water and applied it to birch trees May 4, 1949 with a mist blower. Many eggs had been laid and a few larvae had hatched. Collections made May 9 showed no live larvae on 21 leaves and 508 dead ones. Leaves examined June 17 showed only a few larval mines.

In the Spring of 1950 tests were made as follows: Adults began to emerge about May 5 and continued until about May 20. A 25% DDT-xylene emulsion diluted one gallon to 25 gallons of water was applied with a mist blower on May 8. A few eggs had been laid. It rained the night of May 9.

On May 12 a portion of the trees was sprayed with the mist blower using Isotox 200 (containing 20% Lindane) two quarts to 25 gallons of water. At this time 192 eggs were found in 658 leaves or 8.2% of the leaves infested.

May 23. Sprayed with Isotox 200 one gallon diluted to 50 gallons of water and applied with a mist blower. Part of the trees sprayed on May 12 were resprayed and a large block of trees which had not been previously sprayed were also treated. Most of the adults had disappeared, the leaves contained many eggs and larvae. The largest larval mines were not more than ⅛ of an inch in diameter.

An examination made June 8 showed a control of only 11.6% in the trees sprayed with DDT May 9. Trees sprayed May 12 with Lindane (Isotox 200) gave a control of 51.6%. Trees sprayed on May 12 and again May 23 with Isotox 200 gave 100% control, 670 leaves showing no live larvae. Trees sprayed May 23 with Isotox 200 showed a control of 99.5%, 883 dead larvae and three live larvae in 143 leaves.

(Continued on Page 11, Col. 3)

Presenting The New "Charle

By Edward A. Scanlon

The Norway Maple (Acer platanoides L.) has been a favorite tree for ornamental planting for almost 300 years in the British Isles. It is believed to have been introduced into the United States prior to 1820 by a Mr. Prince of Flushing, New York. Since that time the only improvement made in the species was the discovery of the variety "erectum" by Bernard Slavin, former Superintendent of Parks at Rochester, N. Y. This upright form has gradually come to be recognized as an extremely useful variation that has a multitude of uses.

It seems to the writer that one of the greatest criticisms of the Norway Maple, that it is difficult to grow grass under it, is, in a great majority of cases, the fault of the planter for placing the trees too close together. On streets they should be placed about 55 feet for best results. However, the tree generally is a very useful species. The irregular variations that occur in seedling trees is most noticeable where used as a street tree. In such a use all manner of forms and branching habits prevail thereby robbing the planting of the uniformity and neatness that all planters desire.

arles F. Irish" Norway Maple

To overcome this fault and to assure planters of trees whose lower branches would not have the drooping semi-pendulous habits of the average Norway a number of selections have been made by the writer. Prominent among these selections is the one shown above in winter and summer pictures—it has been named the "Charles F. Irish" Norway Maple and will come into the nursery trade under this name. The tree is named for Chas. F. Irish, eminent American Arborist of Cleveland, Ohio, and former president of the National Shade Tree Conference.

The "Irish" Maple is characterized by having a generally round uniform, but not too tight a form. The branches, from bottom to top, all sweep upward thereby eliminating one of the faults of the species with its drooping lower branches. The foliage differs from the species in that it is slightly smaller, but is uniformly spaced on branches giving a very neat orderly appearance. The Irish Maple will no doubt make a large tree in 50 years, probably up to 45 feet. It should be planted 55 feet apart on streets—in treelawns of at least eight feet in width—not under less than 50 feet wires, and on streets with at least a 30 or 35 foot setback. With space in proportion to its size and beauty the Irish Maple will shortly be an invaluable addition to the street, highway and landscape planters' kit of tools.

CHARLES F. IRISH,

Former president of the National Shade Tree Conference for whom the "Irish" Norway Maple was named.

Further tests made in 1951 gave good kill with Isotox 200 diluted 1 to 50 with water. It appears that Lindane does not have a long residual action in killing eggs or larvae in the birch leaves. Probably not more than a week, therefore the necessity for a second application if the infestation is severe.

The results of Matthysse and Naegele in using Lindane agree very closely with those of my own.

Other materials tested by Matthysse and Naegele each diluted in 100 gallons of water were one pint 50% Systox emulsion, one pound 25% Lindane wettable powder, 2.5 pounds of 40% wettable chlordane powder, five pounds 40% chlordane wettable powder, 10 pounds 40% chlordane wettable powder, 1.35 pounds of 74% chlordane emulsion, .5 pound and 2 pounds of a 25% Aldrin wettable powder, one and two pounds of 25% wettable Parathion powder, six and eight pounds of 25% toxaphene wettable powder, 0.1, 0.5 and 1 pound of 63.3% Octamethyl Pyrophosphoramide, and one pint and one quart of 40% nicotine sulfate with four pounds of soap.

In their 1951 tests one pint of the 50% Systox emulsion, one pound of the 25% Lindane wettable powder and five pounds of the 40% chlordane wettable powder gave the best results.

They state that commercial operators have used both chlordane five pounds 40% wettable powder and Lindane 25% wettable powder to 100 gallons of water with excellent control.

—C. C. Hamilton Shade Tree and Nursery Pests

A Classification of Midwest Forest Types

By KENDALL LAUGHLIN,
Chicago, Ill.

In the 1949 Yearbook of the U. S. Department of Agriculture, W. A. Dayton mentions twelve different classifications of forest types in the United States, published as representing the views of that many different authors. It appears that the ecologists and academicians have classified forests from the standpoints of evolution, climate and ecology, such as soil relationships, and the practical foresters have classified forests according to the species in their composition. I am concerned in this paper only with the latter viewpoint.

In devising a forest classification, it is primarily necessary to decide whether the classes shall be broad enough so that the results may be graphically expressed on a map of the United States, or whether the classes shall accurately describe the diverse tree associations found in nature.

An objection to the first method is that the groups cover so much territory and geographically include so many diverse types of forest composition that such general descriptions are of negligible value if any degree of accuracy is desired. I shall cite three examples of woodlands in as many different states, all within 75 miles of each other. In Warren Woods, Three Oaks, Mich., the dominant species are Sugar Maple, Black Maple, some Red Maple, and Beech. It is essentially a beech-maple forest and is so regarded locally. There are Swamp White Oaks on the Galien River, and White and Northern Red Oaks are confined to small areas. Two species of Hickories are found in very small numbers. On the sand dunes of the Indiana Dunes State Park, with the exception of their north slope, facing Lake Michigan, the forest cover consists of Black Oak, Basswood, Hoptree, Sassafras, Witch-Hazel and Chokecherry. In Higinbotham Woods, east of Joliet, Ill., Sugar and Black Maple and Swamp White Oak comprise about 90% of the forest cover. In all three of these woodlands Hickories are either absent or exist in very small numbers. Notwithstanding the wide diversity of composition of these three woodlands, they are all located in the region classified as the oak-hickory type on a vegetation map of the United States.

While it is of course recognized that the species and their percentage of the total forest composition vary widely and the classification of mixed mesophytic deciduous forests presents a complex problem, it is nevertheless possible to outline forest types based on the occurrence of outstanding representatives of different types and their percentage of the total.

The need of an accurate classification of forest types is strikingly shown in woodlands where there is an abrupt and almost complete change in the forest composition within a short distance. Mention has already been made of the "Sandhill Forest" of the Indiana Dunes. In other parts of the park the presence of the White Pine and of the Beech with its Maple associates distinguishes other forest types. In heading toward the Mississippi River in the Big Oak Tree State Park of Missouri there is an abrupt change in the forest composition as Sycamores, Bur and Shumard Oaks, Shellbark Hickories and Sweetgums fade away and Baldcypresses, Black Willows, Cottonwoods, Overcup Oaks and Sugarberries become very numerous. This difference between the upper and the lower bottomland timber justifies the division of the Mississippian Forest as shown in the following classification.

While *Quercus ellipsoidalis* and *Q. velutina* can be distinguished only by their acorns and winter buds, *Q. ellipsoidalis* is so very common within its range that I think it should be regarded as a determinant. Other determinants used in the following classification are White Pine, Beech, Honeylocust, Mockernut Hickory, Arkansas Black Hickory, Shortleaf Pine and Loblolly Pine.

The "Central Forest" type is a broad description intended to cover most woodlands in the central deciduous forest region midway between the northern Pines and the southern Pines.

In classifying individual woodlands under the following categories conflicts may crop up. The "Ozarkian Forest" is remarkably uniform in its composition over a wide area extending thru the uplands of the Ozark and Boston Mountains of Missouri and Arkansas and extending along ridges nearly to the Missouri River. The species on the hill on the southern boundry of Swope Park, *Carya texana arkansana* and *Quercus stellata*, are the same as on the summit of West Mountain near Hot Springs, Ark. There is no sharp line of distinction between the Ozarkian Forest and the Washita Forest, but the presence of the Shortleaf Pine and the two Gums in numbers will usually determine the latter, which is the usual cover of the mountain slopes and upper valleys of the Ouachita Mountain region.

It is my thought that the "forested area" should be the ground area beneath the crowns of the individual trees. It is to be understood that not every one of the species shown in the 50% quota must be present in a given woodland.

The following classification is the result of many years of field observations, but the specific alinements have come to my mind only recently. It may be necessary to add a type to cover the valleys of the Ozark region, where there are so many species that a list that will make up 50% of the total cover without conflict with other types may require further study. The following classification is subject to amendment, but I hope that it will be regarded by students of the subject as a long step towards an accurate and practical classification of forest types in the Midwest.

CLASSIFICATION OF MIDWEST FORESTS

Where *Pinus strobus* is present:

NORPINE (Northern Pine) FOREST

Examples: White Pines State Park, Ill.; parts of Apple River Canyon and Starved Rock State Parks, Ill., Indiana Dunes and The Shades, Ind., Warren Dunes State Park, Mich.

Where *Pinus strobus* is absent
and
Either *Quercus velutina or Q. borealis Hamamelis virginiana, Sassafras albidum, Prunus virginiana.*
are all present
and
Quercus velutina, Quercus borealis, Sassafras albidum, Hamamelis virginiana, Prunus virginiana, Prunus serotina, Ptelea trifoliata.
constitute more than 50% of the forested area:

SANDHILL FOREST

Examples: Parts of Indiana Dunes State Park and Warren Dunes State Park, Mich.

Where *Pinus strobus* is absent and *Fagus grandifolia* is present
and
Fagus grandifolia, Acer saccharum, Acer nigrum, Acer rubrum, Quercus alba, Quercus borealis, Ulmus americana.
constitute more than 50% of the forested area:

BEECH-MAPLE FOREST

Examples: Most Indiana forests; Warren Woods.

Where *Pinus strobus* is absent
and
Quercus ellipsoidalis is present and dominant over *Q. velutina*
and
Quercus alba, Quercus macrocarpa,

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Baby Ramblers Cartooned At Nursery Convention In Detroit

KEN WILMORE, Denver, Colo.

Ex-Governor LLOYD STARK, Mo.

ED AMBO, St. Louis, Mo.

HOWARD KYLE, Tipp City, Ohio

F. WILCOX, Montebello, Calif.

L. A. "Slick" DEAN, Tyler, Tex.

STEVE VERHALEN, Scottsville, Tex.

DICK BLOSS, Okla. City, Okla.

HARRY BABBUT, Columbus, Ohio

NAA NEWS

By PAUL E. TILFORD, *Secretary*
Box 426, Wooster, Ohio

N.A.A. Annual Meeting

The National Arborist Association will hold a one-day meeting, August 18, Hotel Statler, at Boston previous to the official opening of the 28th National Shade Tree Conference, August 19. President Oscar Warner, Waterbury, Connecticut, will open the meeting promptly at 10:00 a. m.

On the morning program will be a reverse panel discussion on problems related to the general care of shade trees. Norman Armstrong, Chapel Hill, North Carolina, will serve as panel chairman. Other panel members are to be announced later. The panel members will each present what they consider a serious problem for those doing private tree-care work. The audience will enter into the discussing of the questions and will have an opportunity to present additional questions. It should be a lively discussion with everyone having his say.

The afternoon program will consist of discussions on Insurance for the Arborist, Industry Statistics—Wages and Prices, The Help Situation and Line Clearance.

The Association Annual Dinner and Business meeting will be Tuesday evening.

Initial ground work for the formation of the National Arborist Association was laid at the thirteenth National Shade Tree Conference at Baltimore in 1937. The following year at St. Louis a constitution was adopted and the organization completed. The Association was incorporated in 1946. This year's annual meeting is the fourteenth.

N.A.A. Objectives

The National Arborist Association, Inc., is a trade association. It is established for the following purposes: to bring together persons and firms engaged in the profession of arboriculture as a livelihood and in which recognized methods of tree surgery, pruning, spraying, fertilizing, transplanting, kindred arboricultural and horticultural activities, and diagnosis are practiced; to promote good fellowship and understanding; to advance the interests of the shade tree preservation industry; to collect, preserve and disseminate valuable and useful information relating to the business of arboriculture; to encourage sound and useful legislation and to oppose legislation which is harmful or unfair to the arborist's profession; to foster and promote research; to maintain good ethics, integrity, good faith, good will, and just and equitable principles of business in the industry; and to strive in every practical way to promote the best interests of its members.

Present Officers

Officers for the current year are as follows: President, Oscar F. Warner, Landscape Forester, Waterbury, Connecticut; 1st Vice President, Sidney McNeal, McNeal Tree Service, Tiffin, Ohio; 2nd Vice President, Gerald Corr, Blume System Tree Experts, Houston, Texas; Secretary, H. N. Engledow, Midwestern Tree Experts, Indianapolis, Indiana; Treasurer, Hackett C. Wilson, Wilson Tree Co., Shelby, North Carolina; Immediate Past President, Walter P. Morrow, Morrow Tree Company, Sewickley, Pennsylvania; Executive Secretary, Paul E. Tilford, Wooster, Ohio. Additional members of the Board of Directors are: George W. Goodall, Goodall Tree Expert Co., Portland, Maine; Ross Farrens, Farrens Tree Surgeons, Jacksonville, Florida; and Ray Gustin, Jr., Gustin Landscape and Tree Service, Silver Spring, Maryland.

Membership

The present membership of the Association is 164 and its members are located in 30 states and the District of Columbia. Four honorary members are Dr. L. C. Chadwick, Ohio State University, Columbus, Ohio; Mr. H. Stevenson Clopper, Charles Town, West Virginia; Prof. Karl Dressel, Michigan State College, East Lansing, Michigan; and Dr. Ray R. Hirt, New York State College of Forestry, Syracuse, New York.

Membership in the National Shade Tree Conference, acceptable references including a bank reference, and active engagement in commercial shade tree work for at least three years are prerequisites to membership in the National Arborist Association.

Peat Moss Does More, Costs Less Than Chemical Soil Conditioners

Most gardeners probably will decide that at present prices, peat moss is as good for gardens as chemical soil conditioners, an extension floriculturist at Ohio State University said.

Victor H. Ries said soil conditioners are not substitutes for organic matter, such as peat moss. Gardeners will be able to loosen and aerate 1,000 to 1,500 square feet of soil to a depth of more than six inches with peat moss at about the same cost needed to do the job with chemicals on 40 square feet.

Prices of new soil conditioners vary widely and "so do the claims of a few fly-by-night companies trying to take advantage of the public," Ries said. Although most of the conditioners are made from the same original chemical, "that does not mean very much. Their effectiveness depends upon the complexity of molecules from which they are made.

"If materials are good, they will have been tested by agricultural experiment stations. Advertising will be able to say so. If they have not been so tested, they probably will avoid any mention of experiment stations."

Ries pointed out that new chemicals are effective only to the extent that they are thoroughly mixed with the soil. If gardeners mix them with the top inch of soil, they will improve only that inch.

"Tests at Ohio State University show it is not possible to get soil conditioners applied in water to penetrate more than a fraction of an inch into the soil. Since most plants root more deeply than that, they will not get much benefit from such chemicals."

New Weed Killer Service Bulletin Issued By Pennsalt

The Agricultural Chemicals Department of the Pennsylvania Salt Manufacturing Company has prepared a new service bulletin on the uses and application of Penite 6, a non-selective weed killer.

Instructions are given in the bulletin for top growth and aquatic weed control and also explanations of the methods to be employed in soil treatment for the complete kill of weeds and grasses.

Penite 6 is also a control agent for termites, and formulations are furnished for preparing the proper solution for this use.

Application of Penite 6 is a highly efficient method of debarking trees and is effective in the killing of trees and stumps. The bulletin contains recommendations for the use of Penite 6 for this purpose.

A copy of the bulletin may be obtained by writing to Pennsalt Chemicals, Agricultural Chemical Department at 1000 Widener Building, Philadelphia 7, Pa.; Bryan, Texas; or P. O. Box 11, Montgomery, Ala.

America's Oldest Garden Cemetery

By Oakes I. Ames,
President, Mount Auburn Cemetery, Cambridge, Mass.

Mount Auburn Cemetery of Cambridge, Massachusetts, is unique in that it is not only the oldest garden cemetery in America, but was established and operated for a few years by the Massachusetts Horticultural Society—a fact that has had a lasting influence on its horticultural development. Its consecration in September, 1831, constituted a notable landmark in the history of landscape gardening as applied to cemeteries. The innovation of a non-sectarian burial ground in beautiful natural surroundings—in sharp contrast to the overcrowded city graveyards which threatened the public health—quickly won universal acceptance, and within twenty years rural cemeteries became a distinctive feature of the American scene.

To Dr. Jacob Bigelow, noted Boston physician and botanist, belongs the chief credit both for the conception of a beautifully landscaped cemetery and for the perseverance and determination that were required to carry his idea to fruition against discouraging indifference and formidable obstacles. Today, when flowering trees and shrubs are an essential feature of every rural cemetery, it is difficult to conceive that there should have been apathy and even opposition on the part of the public to such a needed reform in burial practice. Had it not been, however, for the active sponsorship of the recently organized and energetic Massachusetts Horticultural Society, which commanded wide popular support, it is doubtful whether the project for a combined cemetery and experimental garden could have been launched at that time.

A large acreage was set aside by the Horticultural Society for an experimental garden for "the promotion of horticulture in all its branches, ornamental as well as useful." Seeds or scions of unusual trees were contributed by botanical gardens and horticultural societies in many lands. During the opening years of the cemetery over thirteen hundred ornamental or fruit trees were planted by the gardener as well as four hundred and fifty varieties of seeds which were sent to the Society from Europe, Asia, and South America.

Despite this auspicious beginning, the garden never became a factor of importance even to local horticulture because of the lack of specific funds for its support and a conflict of interest which developed between those who were primarily interested in the promotion of the garden and those who wished the proceeds of lot sales to be used for the improvement of the burial grounds rather than for defraying the expenses of the Horticultural Society. After four years of operation, the need for segregating the cemetery and its management from the Horticultural Society became apparent. Accordingly, a compromise plan was devised that has proved a source of much satisfaction to both parties. The Horticultural Society in 1835 conveyed the garden and burial ground to the present cemetery corporation under an agreement whereby, as since amended, Mount Auburn pays to the Horticultural Society approximately one-quarter of the gross proceeds received from the sale of lots situated in the 138 acres which comprised the burial grounds in 1910. Under this agreement the Horticultural Society has not only been reimbursed for all its capital outlays and expenses incurred in connection with the cemetery, but has received in addition more than $415,000, a sum that constitutes over one-half of that Society's investment fund and more than one-quarter of its total assets. On its part, Mount Auburn takes pride in the important contribution which it has made, and will continue to make, to the cause of horticulture in Massachusetts.

The Asa Gray Garden showing in right center background the famous Ginkgo described by the author.

While "the cemetery and garden" was thus early separated from the Horticultural Society, it has been the aim of the trustees throughout the years to carry out the high ideals of the founders for a memorial ground for the repose of the departed, in which flowering shrubs and trees and the beauties of nature should play a conspicuous role. Space does not permit the telling of how it was necessary drastically to thin out the original stand of oak, beech, walnut, and pine in order to admit sunshine to the newly laid out lots; or the story of the frequent importation of rhododendrons, mountain laurel, and other flowering shrubs and trees to supplement the natural beauty of the rugged terrain. It will have to suffice to mention only two or three episodes of unusual horticultural or historic interest.

Probably one of the first exotic trees to be introduced into the cemetery by Dr. Bigelow was a *Ginkgo biloba.* This grew to be of such proportions that it was described by Ernest H. Wilson in his *Aristocrats of the Trees.* A notable feature of this tree was that its pollen fertilized some female trees located at the Gray Botanic Gardens over a mile distant. Unfortunately, this tree was struck by lightning and all efforts to keep it in healthy condition having failed, it had to be removed in 1942.

(Continued on Page 40)

Modern Practices In Tree Care

By J. C. Carter
Illinois State Natural History Survey
Urbana, Illinois

(Paper given at 7th Annual Midwestern Chapter, N. S. T. C., February, 1952)

Pruning, spraying, feeding, surgery and tree removal are common practices utilized in tree work for combatting pests and for general maintenance. These practices, properly carried out, are important aids in maintaining and prolonging the ornamental value of shade trees. However, improper and inadequate execution of these practices may be as detrimental as good practices are beneficial.

Pruning. Trees can be pruned to improve their shape and general appearance, to remove branches and stems damaged by wind, ice, rubbing and other types of mechanical injuries, and to eliminate dead twigs and branches. Removal of weakened and dead branches will eliminate breeding places for insects such as bark beetles and borers. This is especially important in the control of the European elm bark beetle which carries the Dutch elm disease fungus.

Pruning to remove diseased branches is beneficial in the control of canker, dieback, gall, and witches' — broom diseases. Branches affected with these diseases should be cut back six inches or more below the base of diseased areas usually to the nearest living lateral or to the trunk. Ugly wounds caused by branches splitting down should be avoided by making three cuts: first, an undercut 12 to 18 inches out from the main stem; second, an overcut two to three inches farther out which will cause the branch to break off; and third, a final cut which removes the stub flush with the main stem. Avoid injuring the bark since the new infections may occur through wounds resulting from such injuries.

Time of pruning may determine the effectiveness of treatment. When diseased branches are wet, bacteria and fungus spore ooze out from diseased areas onto the surface of the bark. Pruning for disease control at this time should be avoided since the organisms may be spread by pruning tools. This is especially important during late April, May, and early June when trees are most susceptible to many diseases. Pruning tools should be disinfected, and all pruning wounds should be disinfected and painted. Denatured alcohol (70 per cent) is an effective non-corrosive, rapid drying, readily available disinfectant.

Special care must be exercised in pruning to control canker stain of planetrees. The disease can be transmitted by any agency that makes contact with the fungus on diseased trees and then is used in making wounds or comes in contact with wounds on healthy trees. Pruning should be done during the winter when the fungus is least active. All pruning tools should be carefully disinfected before using on healthy trees. Denatured alcohol of the anti-freeze type is a satisfactory disinfectant. Climbing ropes contaminated with the fungus can be disinfected by exposure to formaldehyde vapors for three hours (¼ pound in a 10 gallon closed container). Since the fungus can be carried in ordinary types of wound dressings, a gilsonite-varnish type of paint (Federal specifications TT-V-51) which has 0.2 per cent phenylmercury nitrate mixed in it should be used.

Early infections of oak wilt in white oaks and Dutch elm disease in elms, if localized in individual branches, may be eliminated by pruning. Wilt producing fungi, e.g., *Verticillium,* that have invaded the trunks of affected trees cannot be eliminated by pruning. Branches on such affected trees that show foliage wilt may not die but produce a new crop of leaves later the same growing season or the following growing season. Severe disfiguration of these affected trees may be avoided by removing only the dead branches or dead wood of wilting branches. Elms affected with the wetwood disease are apt to bleed most profusely when pruned during July, August, and September since sap pressure is highest at this time of year. Sap pressure in wetwood affected elms is lowest from December to March. Trees with thin bark such as maple and birch are subject to sun scald when pruned severely, especially during late summer.

Spraying. Sprays are used to control insects and diseases, to kill brush and other undesirable plants, to correct deficiencies, and to stimulate growth. The effectiveness of any spray depends upon obtaining complete coverage of the treated parts with the right material at the proper time.

Most insects can be controlled by applying insecticides after the pest has appeared. However, to control diseases, fungicides should be applied as protectants before infection occurs and not as a cure after the disease has appeared. Since fungicides are applied to the surface of plants, they act as barriers or protectants against germs. Therefore, they are of major importance in the control of foliage diseases. Many pests do not cause serious damage each year and it is not necessary, to spray annually for their control. However, trees subject to repeated annual attacks of a disease, such as leaf spot, blight or blotch, should be sprayed annually until the disease is brought under control. Spraying annually is necessary to control the elm bark beetle that carries the phloem necrosis virus.

Fertilizers and other minerals may be sprayed on foliage of trees for limited or temporary stimulation of growth and for correction of some nutritional deficiencies. Deficiencies, such as chlorosis, may be corrected temporarily by spraying the foliage with a solution of the required mineral. This type of treatment is effective only on the foliage sprayed or only for a single growing season. Most lasting control is obtained by treating the soil to correct the deficiency.

Spray injury may occur as discoloration, distortion, or burn of leaves, defoliation, killing of twigs and branches, or stunting of growth. Spray drift or vapors from herbicides such as 2, 4-D and 2, 4, 5-T frequently cause injury to trees as well as other plants. Adequate coverage of elms with DDT to control the elm leafhopper, carrier of the phloem necrosis virus, is essential. However, heavy applications of this material frequently cause abundant foliage burn and may cause the death of branches.

Feeding. To promote vigorous growth and to maintain the health of trees, it often becomes necessary to provide food materials which are lacking, or are present in insufficient amounts in the soil. Tree foods may be supplied as foliage sprays, trunk injections, and soil applications. Foliage sprays have a temporary effect because they usually help only the foliage that receives the spray. Trunk injections are effective over longer periods of time than foliage sprays but are less permanent in their effect than soil applications. Numerous holes made in trunk injections are detrimental to the tree and fungus infections may develop in the wounds. Soil applications are more commonly used and are usually effective for longer periods of time.

Vigorous growing trees are more resistant to attack by insects such as borers and bark beetles and by many canker and wilt diseases. Frequently, feeding supplements pruning in overcoming and preventing diseases. Feed-

ing may be beneficial in combatting some of the vascular wilt diseases, such as Verticillium wilt, since fungi and bacteria that invade the sapwood vessels and spread rapidly throughout the tree cannot be eliminated by pruning, spraying or surgery after they have invaded the trunk sapwood.

To avoid injury from feeding, trees should be examined for diseases, insects, and other types of injuries that might influence the amount and type of food required. Trees with large areas of dead bark on their trunks or main branches may be unable to utilize the amount of tree food commonly recommended. In such cases, the foliage may be burned or the tree may be killed by too heavy an application of food. Trees showing staghead or general decline may be killed by heavy applications of tree food high in trace elements. Tree foods that have an acid reaction are more apt to cause injury than those neutral in reaction. Inadequate watering of dry tree foods, especially during dry periods in late summer, may result in root burning.

Tree Removal. While trees may be removed for various causes, dead trees frequently become public hazards and should be removed to prevent injury to animal life and damage to property. Elms killed by phloem necrosis usually deteriorate rapidly and branches or large sections may break off and fall within a year after the tree has died.

Early removal of trees harboring insects and diseases is an important sanitary measure in the control of the pests. Removal and destruction of the elms killed by Dutch elm disease helps to reduce or eliminate the fungus as a source of inoculum. However, removal and destruction of all weakened dying and dead elms eliminates the main source of material in which elm bark beetles breed and is one of the most effective practices in preventing the spread of Dutch elm disease.

Oak wilt may be held in check by careful and thorough sanitation in removing and destroying diseased trees. Spores of the fungus can pass from roots of diseased trees to roots of healthy trees through root grafts where oaks are growing within 50 feet of each other. Frequently the transmission of spores through root grafts can be prevented by cutting all roots to a depth of 3½ feet between a diseased and a healthy tree before the diseased tree is felled. Since the fungus may grow and sporulate between the bark and wood of wilted trees, tools used in cutting such trees should be disinfected to kill any fungus material that may cling to them.

Surgery. Some types of injuries and diseases of trees may be corrected or overcome by surgery. Bark injuries caused by rodents, humans, machinery and other types of objects may be treated in several ways. Limited injuries may be overcome by removing the damaged bark, tracing the margins back to the living uninjured bark, and painting the exposed wood. Shading instead of painting wounds treated within a few hours after the damage has occurred prevents drying and death of the living cambial cells on the surface of the wood and encourages rapid callusing over the entire surface. Extensive injuries with destruction of the cambium and girdling damage by rodents may be overcome by bridge grafting.

Canker diseases that attack trunk bark and wood such as fire blight and target canker may be controlled by surgery. In removing the diseased tissues and disinfecting and painting the exposed wood, care should be exercised to prevent spreading the disease to other parts of the tree and to other trees.

Surgical efforts to save planetrees affected with canker stain are advisable only when the disease is confined to branches. Special care used in removing branches affected with this disease is described under pruning.

(Continued on Page 30)

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Arboriculture—This Is Our Business

(Paper given at meeting of Maine Arborist Association, Portland, April, 1952)

By Albert W. Dodge,
Consulting Arborist
Wenham, Mass.

During the past 40 years I believe I have attended scores of Shade Tree meetings and conferences, such as this one. In attending these meetings I have travelled to many different states and have met hundreds of good fellows who have been busy making their living in the same line of endeavor as myself.

Invariably they have been a fine group of men and I have been greatly impressed with their eagerness to obtain new information about their work, especially during the past few years when many important features of shade tree care have been changing so rapidly under the impact of new insecticides, fungicides, important modern equipment and methods.

In friendly gatherings outside of the meeting places, we have often discussed the papers that have been given at the meetings. These discussions have often centered around specific problems that face the individuals in their daily work.

I believe we all have a feeling that since the majority of the speakers are connected with the government or with some commercial company he could not really take his hair down and give detailed advice naming spray materials and equipment. He could only give general advice and you, by trial and error, must buy the equipment or materials that are offered by so many of our very reliable dealers.

This short paper of mine is going to be rather unique in that I will mention the various things that have helped me during the last 40 years, in my business of caring for the shade trees of the country.

During the last few years I have been doing less and less actual work in the field and acting more as a consultant, not only in shade tree diseases, but in the establishment and operation of smaller tree expert companies. The principal questions I have to answer for the young fellows coming out of school and establishing businesses of their own is: "What do I need to be a successful operator of a small company in arboriculture?" The old timer's answer was, "A strong back and a weak mind." To be serious—it seems to me that the answer to these questions consists of three main subdivisions:

First: Professional knowledge.
Second: Operating equipment.
Third: And just as important. Knowledge of business procedure.

I. PROFESSIONAL KNOWLEDGE

Now, I don't intend to try to tell anyone all he must know professionally about his business to make it a success. I can't, and I know none who can. It would not do any good if I could because some people can absorb knowledge, and there are others that would not take professional advice no matter by whom it was offered.

However, if a man is going to be a success in this business and give the proper services to the people for whom he works, he must have some fundamental knowledge of the profession. It is his for the asking, most of it free, or gathered for him by the masters of specialized knowledge in entomology, pathology, soils, fertilizers and horticulture.

I believe that every man either running a business of his own or in a responsible position in a tree expert company should have a library. I am going to name some of the books that should be in this library. I would start this list with Dr. Pirone's "Maintenance of Shade and Ornamental Trees" published by the Oxford University Press Inc. of 114 Fifth Avenue, New York. As a companion book to this, I suggest "Tree Experts Manual" by Richard Fenska published by DeLaMare Garden Books, 448 West 37th Street, New York.

Then there are two books by Dr. Cynthia Westcott. One is "The Gardeners' Bug Book" and the other which has just been published is "The Plant Disease Handbook." These are published by D. Van Nostrand Company, New York. Exceptionally valuable to Maine arborists is an excellent paper-covered booklet on "Important Tree Pests of the Northeast" published, I believe, by the Evans Printing Company of Concord, New Hampshire.

If I were a young fellow just starting this business today, I would consider it of utmost importance to have my name listed at the experimental stations of both the State and National Government to receive leaflets on tree diseases and insects whenever they are published.

You, here in Maine, are fortunate insofar that the State Entomologist, Dr. Pierson, is vitally interested in shade tree pests and is today recognized as one of the outstanding authorities on forest insects in the country. His friends know how anxious he is to help in any individual problem that may be puzzling to anyone in this industry. The state of Maine certainly can be proud of this outstanding scientist.

Please do not think that I have mentioned all of the books that you need in your business. That, of course, would be absurd as there are thousands. However, you should acquire as many as you can from year to year, and each new book is going to give you added interest and help you to solve many problems in your field work.

Last week I purchased a copy of Dr. Wyman's "Trees for American Gardens." I am still reading it at every opportunity I have and believe it an outstanding reference book for tree experts, landscape architects and landscape gardeners, and our friends, the nurserymen.

I would suggest that the Arborists Association of Maine prepare and distribute to its members a leaflet giving a more complete list of recognized books and bulletins of value to you people. No doubt Dr. Pierson would be glad to assist in preparing such a bibliography. This could be made a project which would be of extreme value not only to you fellows in Maine but other arborists in the country as well.

I would also like to urge the members of this arborist's group here in Maine to attend as many group meetings as possible in other states. Most of these group meetings are held during the winter months. There are meetings by the Massachusetts Arborist Association, the Connecticut Tree Protective Association, and the New Jersey Shade Tree Commission. All of these associations will be glad to have you visit with them. At these meetings you will have the opportunity to listen to discussions by leaders in shade tree diseases. Through round table discussions you will hear how other companies are handling the many problems that you meet every day in field operations.

Every year, around the last week in August, there is the National Shade Tree Conference. This year the meeting will be in Boston. In combination with the National Shade Tree Conference will be the yearly meeting of the National Arborists' Association. Every year, whether the Shade Tree Conference is held here in the east, the south, or middle west, you should use every effort to attend. For a week you will meet men who are making their living in arboriculture. You can help them, and they can help you.

By this close association, the exchange of ideas, and the discussion of problems

(Continued on Page 20)

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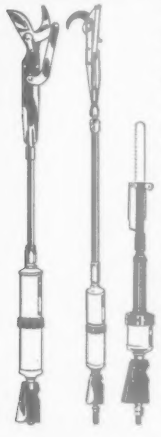

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Our Business

(Continued from Page 18)

common to all of us, you will come to know intimately scientific men who are working on shade tree diseases, and you will bring back to the property owners who depend on you to keep their trees healthy the very latest data on tree diseases.

Think this over carefully! It is very important to you both professionally and commercially. What would you think of a doctor who never attended meetings of a medical association for the discussion and exchange of new ideas and who never subscribed to or studied diligently the various medical journals. You would not have quite the confidence in this type of doctor, if there are any such in the medical profession.

The National Shade Tree Conference mails to its members the Arborist News, and those of us who receive this are obtaining the latest information on all phases of tree care. I believe this alone is worth more than the price of the yearly dues.

We also have available at a very small subscription cost a splendid trade paper entitled, *"Trees."* This is published by Ed Scanlon, the City Forester of Cleveland, Ohio. Ed has been publishing this paper for many years. It is most excellently edited, well illustrated, and during the year will carry many remarkably well-written articles by leaders in shade tree work. I most heartily recommend this magazine, and I suggest that you not only subscribe for it yourself but also give subscriptions to your key men, perhaps as rewards for exceptionally well done work or as a Christmas present. I know from my own experience that this will go a long way in arousing and keeping the interest of your men in shade tree work.

II. OPERATING EQUIPMENT

Now let us consider the operating equipment necessary for tree specialists. A few weeks ago I was digging around among some old records which I kept when I first went into business back in 1912. During the first few years a considerable percentage of my business was the removing of trees. I remember one contract in the City of Albany where some 400 elms, ash, and maple were removed to permit the widening and relaying of street surfaces.

In those days, I was paying good climbers from 15 to 18 cents per hour. I was billing this work at 60 cents per hour. The removal of trees in those days, topping, cutting up trunks, and the removal of brush averaged from $90.00 to $150.00 per tree. I believe my large contract in Albany was for $135.00 per tree. Today, we are paying from $1.25 to $1.50 per hour for climbers: (I would hate to compare them with the old timers) and we are getting from $2.50 to $3.00 per hour on our charges for this work. However, and this is very significant to me in any discussion of equipment, the cost of removing the average tree is less than it was in the early days of which I speak.

First, we have big rack-bodied trucks to remove the debris. In those days we had horse-drawn tip carts or hay wagons. Today we have power saws of many different types. We do our topping with light electric saws. We do our limbing out with small one-man gas saws, and we can finish up big elm trunks, that would take half a day for two men with a crosscut, in ten or fifteen minutes with a big heavy duty two-man power saw. We have pneumatic clippers for cutting out stumps and electric drills to honeycomb these stumps to allow a man with an axe to get at them more efficiently.

Just consider the change in spray operations. The equipment for my first spray job for my dad on the farm was a water bucket in which I mixed Paris Green and a whisk broom with which I scattered this material on the potato bugs.

When I first started in business I had a barrel pump, a couple hundred feet of hose at the enormous price of eight cents a foot and a Bordeaux nozzle. With this equipment, I sprayed many of the tallest elms in New England along the Connecticut River. The barrel pump was mounted on a democrat wagon (no relation to any of the political parties of today) drawn by a sober old white mare. One of us stayed on the ground working the pump handle and the other fellow, generally myself, would climb to the upper branches and yell for some pressure.

If any of you have attempted to produce pressure enough to a Bordeaux nozzle one hundred feet up a tree know that the man on the ground had no easy job. The fellow who did the climbing really had a cinch. I might mention that back in those days we used spurs and our climbing lines consisted of one-quarter inch rope to haul up tools, spray hose, or other things we might need. There certainly has been some change in spraying since those early primitive days.

The hydraulic machines have become more and more powerful until the climbing of a tree to spray it is almost unknown except for some of the higher elms in towns like Gardner, here in Portland or Augusta, and probably other towns of which I have no first-hand knowledge.

During the past six or seven years through the pioneering work of the Lawrence Company in Greenfield, Massachusetts, mist sprayers have been

(Continued on Page 22)

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Our Business

(Continued from Page 20)

developed that will reach far over the tallest elm depositing the spray material in fine micron-sized particles to every leaf and twig. The mist sprayers have cut the cost of spraying large shade trees in towns and cities to a half or third of that of the hydraulic rig. Incidentally, these rigs have opened up a new field in fly and mosquito control which prolongs the spraying season throughout the summer months.

Practically every type of shade tree work has felt the impact of modern invention of power tools. Cavity work, tree feeding, and even the humble pole saw and pruning pole has been designed to run by some kind of power.

As I said in starting this paper, I am going to tell you frankly some of my preferences in the power tool field. These are not recommendations, and if I was pinned down to give reasons for each preference you would probably have a very good time with me. I have watched many different kind of power saws in operation. For the heavy two-man saw, I like the Disston. I consider it expensive to keep in first-class operating condition, but when it is right, and all twelve horses of its Mercury engine pulling their share of the load, it can slice through big elm trunks at a miraculous rate.

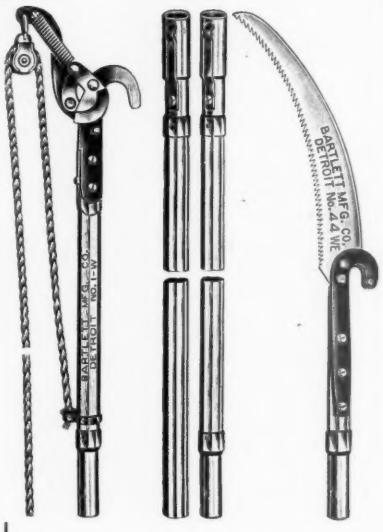
For a light saw and one-man operated, I have used the McCulloch. I have found this saw a tough customer under the hardest work conditions. It is easy to start, repair bills on it are quite small, and it is a most handy little saw for limbing out trees after they are dropped.

For the last two years, I have used two Homelite Electric saws. These saws are run from a generator that produces an abundance in power. The little fourteen-inch saw can be taken up into a tree and used very easily in topping. The saving of time in cutting out and dropping big stubs over that needed by those using the old-fashioned bull saw is remarkable, and the extra profits on only a few tree removal contracts would pay for the equipment. We also use a twenty-eight inch Homelite Electric saw for limbing out and even for the removal of medium-sized trees.

The Homelite Generator also runs an electric drill for bolting and bracing and will run the drill equipped with a feeding bar for the fertilizing of shade trees. We also have with the generator a floodlight for emergency night work. In several of our wind storms during the past few years this floodlight has been a great help in getting trees off housetops, from across roads or private avenues, and in emergency line clearance.

BARTLETT

WE Combination Pruner and Saw



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Only recently, I witnessed a demonstration of a brush-cutting saw known as the Brush-Master. This is sold by Benjamin F. Lawrence of Greenfield, Massachusetts. At the end of the demonstration, I bought one. In the roughest going up against brush up to three inches in diameter, a man can mow it down like a farmer with a scythe in a field of timothy. This Brush-Master weighs about twenty-eight pounds and is carried on a strap around the operator's shoulder.

I have been closely identified with the development of mist sprayers during the last seven or eight years and with one sprayer in particular: the Lawrence Aero-mist Sprayer, so I plead guilty to the charge of being biased in regard to this machine. We have two in our little company, and they are busy from April to late September and have been earning us a very handsome profit. Since the Lawrence Aero-Mist has come into the spraying field, many others have been developed by other companies—the Bean Rotomist, the Iron Age and the Hardie. I have watched all these machines and several others demonstrated at National Shade Tree Conferences and on other occasions, but I still prefer the Lawrence machine, humbly confessing a strong partiality through my connection with the development of this particular machine.

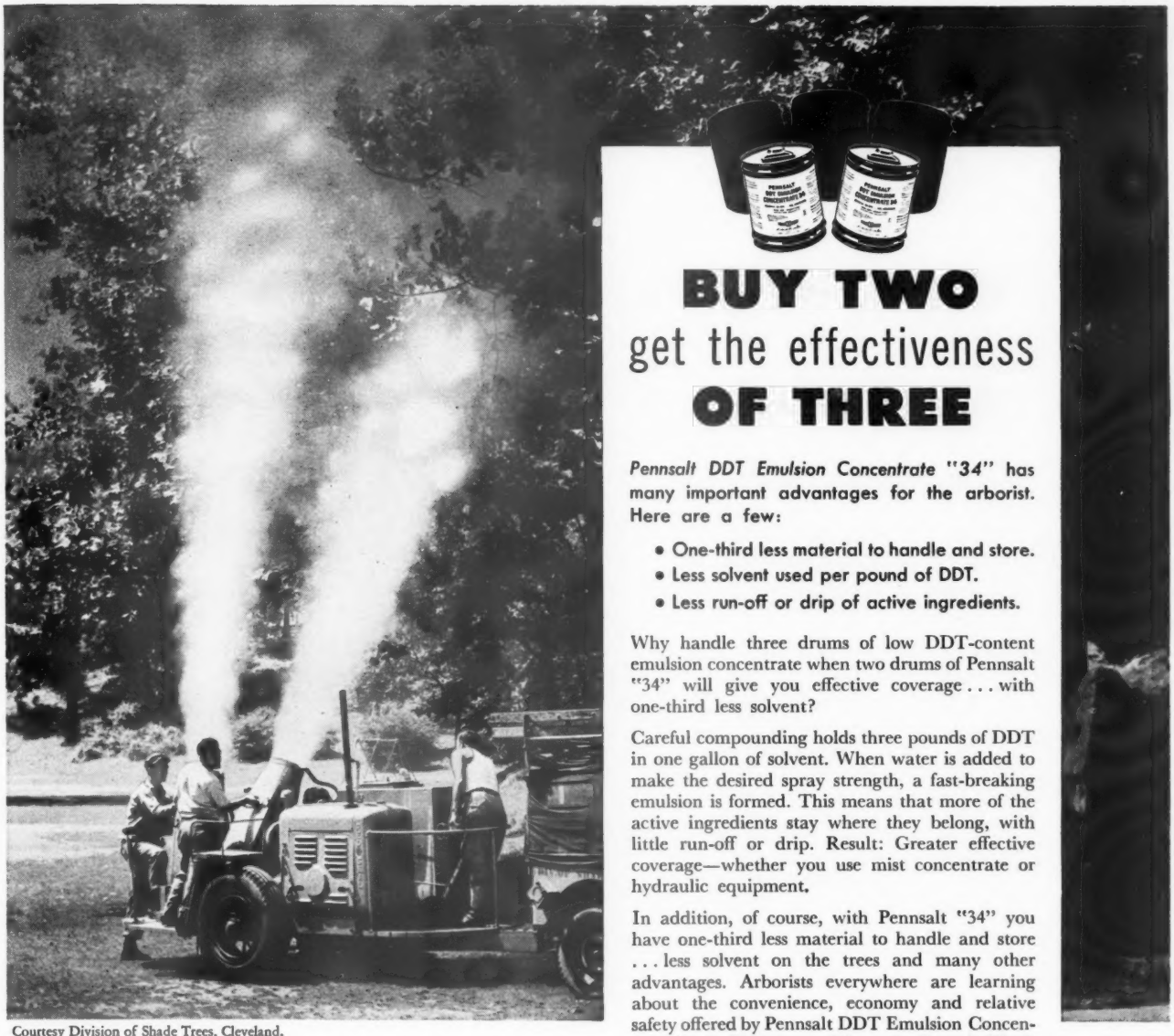
Perhaps you may think that because of the emphasis I have put on the mist sprayers I consider the hydraulic rig obsolete. Far from it! We own two Beans, and we purchased another last year. We do a lot of liquid feeding with subsoil irrigation nozzles. We do our dormant spraying with the Beans and still use the hydraulic rigs in foliar feeding. By the way, I think this feeding of trees by spraying is going to rapidly assume quite an important place in the care of shade trees. The material I have been using is known as Ra-Pid-Gro and is made at Danville, New York.

My friend, Dr. Pirone, has done a considerable amount of experimenting and has obtained some very interesting results. You should have Dr. Pirone here as a speaker at one of your meetings. He is one of our top scientists in shade tree problems.

III. KNOWLEDGE OF BUSINESS PROCEDURE

I think I know what some of you fellows are thinking. Equipment such as this costs a lot of money. There is no doubt that this is absolutely true. For every man that we have working we have approximately $1800.00 of equipment available to help him produce better and more efficient work at a smaller cost. This equipment must be

(Continued on Page 41)



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Trees...

Noteworthy Trees of California

By MAUNSELL VAN RENSSELAER,
Director, Saratoga Horticultural Foundation

One of the tallest and most widely known trees in the famed fruit-growing Santa Clara Valley, California, is the lofty Ponderosa Pine, *Pinus ponderosa,* growing in the gardens of Mr. and Mrs. Robert C. Kirkwood, Bella Vista Avenue, Saratoga. Rich in local history and legend, and now nearing its hundredth anniversary, this magnificent individual was planted in 1857 by John W. Farwell, forebear of Mr. Kirkwood. The site of the pine and surrounding acreage has been continuously occupied by Farwell's relatives since his son, Charles, took a government claim on the property in 1854. According to Kirkwood family tradition, the tree was brought by Farwell as a seedling from the gold fields of the Sierra Nevada. It is thought to be the oldest living cultivated tree in the Saratoga-Los Gatos area. Pictures taken in the 1880's show it to be a fairly large and vigorous tree at that time. Local legend has it that the village of Saratoga was identified by the Kirkwood pine in the early days of air travel.

On April 10th of this year, Professor Woodbridge Metcalf, Extension Forester of the University of California, and I measured the tree and found it to be 120 feet tall and to have a trunk diameter of 45½ inches at four feet above the ground. Professor Metcalf pronounced it to be one of the finest cultivated specimens of Ponderosa Pine he has ever examined.

The majestic Ponderosa Pine in the Kirkwood Garden, Saratoga, Calif.

President, Western Chapter, N.S.T.C.

As a reward for twenty years of faithful attendance and downright plain hard work in the growth and development of the Western Chapter of the National Shade Tree Conference, Ross McIntire was elected president of the conference at its June meeting in Pasadena.

Ross has worked for the Los Angeles City Forestry Department for so many years that no one knows whether he ever had another job or not. Most of his work involves the supervision of the vast amount of public utility line clearance that goes on in the expansive City of the Angels.

Ross O. McINTIRE,
President,
Western Chapter
National Shade
Tree Conference

1953 will be the 20th anniversary year of the founding of the Western Shade Tree Conference, and it was voted to take the meeting back to the city of its birth, Santa Monica. This will be a fine opportunity for Ross to arrange an outstanding program to commemorate the anniversary meeting and no doubt thats just what he's busy working on. In fact it might be nice if a number of the people who appeared on the first program were to be invited to participate at this one.

As long as any organization has men like Ross McIntire to work for it and to serve as its officers it need have no fear of the future.

Trees...

a planned spraying program pays off!

Good results on many species of brush in all sections of the country at all seasons of the year have proved that Esteron* Brush Killer and Esteron 245 should be your first choice for *progressive* vegetation control. A planned program allows your labor and costs to decrease each year as the brush problem is solved gradually.

Both Esteron Brush Killer and Esteron 245 are adapted to the three recognized methods of brush control: foliage, basal bark and stump treatment. Both contain highly effective low-volatility propylene glycol butyl ether esters which have been proved by actual use over thousands of miles of roadsides and right-of-ways.

Esteron Brush Killer, a mixture of 2,4-D and 2,4,5-T esters, is widely used for spraying mixed stands of brush during the growing season, and in winter as a supplement to the regular spraying program. Use Esteron 245 for certain resistant species like poison ivy that need a straight dose of 2,4,5-T! It is successful for foliage treatment and year-around basal bark and stump treatment. Write for information on how to plan a progressive, low-cost brush control program. Or ask your supplier about these result-getting Dow brush killing products.

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Agricultural Chemical Department

MIDLAND, MICHIGAN

In Canada: Dow Chemical of Canada, Limited, Toronto, Canada

This brush-free right-of-way shows successful use of Esteron Brush Killer and Esteron 245.

*Esteron is a registered trade mark of The Dow Chemical Company, largest producers of weed, brush and grass control chemicals.

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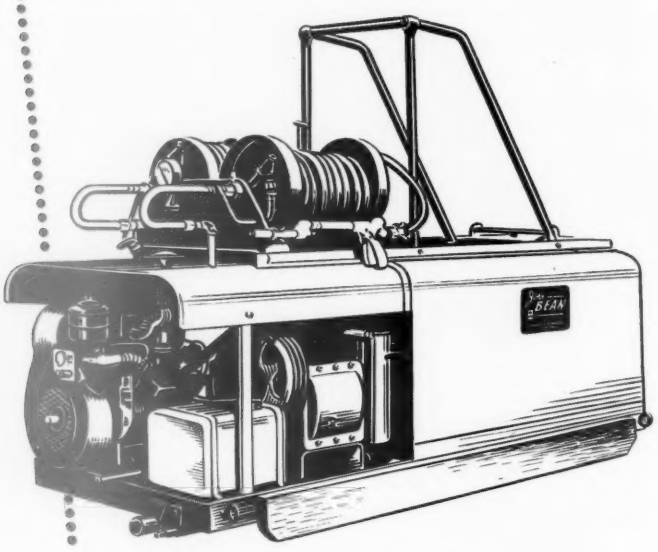

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The Ranger is ideal for fast, thorough tree protection, and brush control. Two hoses are *reel mounted*, and the pressure is controlled at the spray gun so that only a two-man crew is needed. The long hoses permit wide area coverage with minimum movement of the truck, and it's easy to get into those hard-to-reach places with a Ranger. Free Ranger catalog will be sent promptly — write Dept. T-6!

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DIVISION OF FOOD MACHINERY CORPORATION

Shades of "Buzz Sawyer"

An American chemical, aldrin, the deadliest weapon yet developed against man's ancient insect enemy, the locust, is speeding by airplane some 7,500 miles to join other nations and insecticides in a battle to save a quarter of the world's people from a grave threat of widespread famine.

An emergency shipment of two tons of the powerful insecticide, enough to purge more than 30,000 acres of marauding locusts, has been flown from Denver to New York by Flying Tiger, and by several overseas airlines to Damascus, for treatment of locust-infested land in Jordan. The Middle Asian state is one of the most seriously affected of 15 countries of Asia and Africa whose food supply is threatened by what is described as the worst locust infestation in 100 years.

Mixed with water and sprayed from low-flying planes at the exceptionally small dosage of two ounces of aldrin per acre, the American insecticide, on the basis of past performance, is expected to obliterate locust hordes on Jordan's irrigated vegetable crops, date palms and dry land cereals. The toxicant will also be applied in the form of a ground bait at dosages as low as one-half ounce of aldrin per acre.

Forty more tons of aldrin will follow by boat for use in trouble spots from Eritrea in East Africa to India. J. Oostermeyer, president of Shell Chemical Corporation, marketers of aldrin, said today that the 42 tons had been made available "literally overnight" to the United Nations Food and Agriculture Organization, which is cooperating with the governments of threatened countries in stamping out the locust danger.

Shell Chemical, acting on the warning of entomologists this year that signs pointed to a serious outbreak of locusts in the Middle East, prepared drums of aldrin concentrate and held them in readiness. Air and ship transportation facilities were alerted.

"When the F.A.O. placed its rush order on May 12," Oostermeyer said, "the needed aldrin was on its way within 24 hours."

Earlier this year, 77 tons of aldrin were sent by the Technical Cooperation Administration of the United States State Department to the Middle East, bringing aldrin shipments to Africa and Asia this year to a total of 119 tons, sufficient to deliver millions of acres of crops from locust destruction.

Although a comparatively new insecticide, aldrin's success in grasshopper and locust control has given it an international reputation of leadership in this field. The F.A.O., at its 1951 Rome Conference, named it a most outstanding locust control.

Trees...

ATKINS "Silver Steel"

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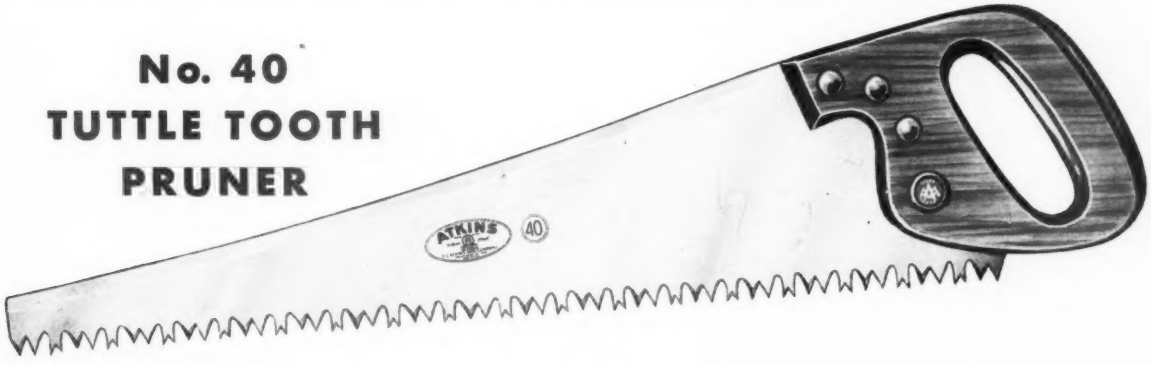
No. 40 TUTTLE TOOTH PRUNER



Symbolic of Atkins *"Silver Steel"* quality, the No. 40 Tuttle Tooth Pruner has extra sharp teeth for greater cutting ease—teeth that stay sharp longer and cut faster, not only because of their scientific design, but because of the top grade steel of which they are made! No. 40 has a kiln dried hardwood handle with a roomy grip to minimize fatigue. This saw is particularly useful, among other things, for cutting large limbs. It is *just one* member of the Atkins Pruner Saw Family—a saw for every pruning job, for every purse, for every person! Ask your dealer to show you *the* Atkins Pruners especially designed to meet your own specific pruning needs. And remember—only Atkins makes *"Silver Steel"* products!

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"ATKINS ALWAYS AHEAD"

Arnold Arboretum

(Continued from Page 9)

back to Boston. Since that time this conical evergreen has proved very popular and is now grown in large numbers both here in America and in Europe.

There are practically no varieties of the Carolina Hemlock, yet in a planting at the Arboretum one plant has been noted that is definitely more dense and slower growing than its mates. This has been named *Tsuga caroliniana "Arnold Pyramid"* and is well worth exploitation.

In even more recent times the Metasequoia has been introduced by the Arboretum to the world. This tree, known before 1946 only as a fossil in rocks millions of years old, is now proving very popular because of its interesting story. As an ornamental, it will probably prove a poor runner-up to many another tree. In fact, the matter of its eventual hardiness is even in doubt. Our tallest tree in the Arboretum is about ten feet tall, and some of the trees have been uninjured here during the past three mild winters, but if we have repeated temperatures of below zero weather some year, I doubt that the plant will live through unscathed.

Of even more recent origin are several new crabapples which have originated in the Arboretum, none of them large enough yet to really be judged by the unskilled public. A new *Magnolia loebneri* cross has been named "Merrill" in honor of Dr. E. D. Merrill, former director. Then too, an attempt is made to obtain all the newer plants that are offered by American nurseries as they become available. *Acer platanoides "Crimson King"* has performed very well for us in our trial plots at Weston, keeping its rich red foliage color all summer long, something which cannot be said of Schwedler's Maple.

Something should be said also for the few trees which will be found in bloom at this time. Most important will be the southern Sourwood or *Oxydendrum arboreum*. There are several of these trees about the grounds, and their graceful drooping racemes of creamy white flowers followed by the brilliant scarlet autumn coloration of their foliage, makes them excellent ornamental trees.

The *Sophora japonica* should also be in bloom. This tree unfortunately has a bad record of not blooming well every year, and last year it was simply covered with blossoms, so it may not be too good this August. If you do not know it, look for the collection immediately across the road from the lilacs.

One other plant might be mentioned, for it too should be in flower at convention time. This is the Evodia, a small tree which has conspicuous clusters of white flowers in the late summer, growing on Bussey Hill. These are followed by bright red fruit clusters in early fall. The fruits are actually dried capsules, but remain bright red during the ripening process and so add color at a time when few trees are showing much of it. This tree also is very rare in the nursery trade, and is probably short lived also, but has some interest for its summer flower.

The famous Hedge Garden at the Arnold Arboretum. Over 150 different species of plants are on trial here.

A well developed specimen of the hardy form of Albizzia Julibrissin rosea. This specimen is old but blooms magnificently each summer.

These are only a few of the hundreds of trees to be seen. Then there are nearly 3300 kinds of shrubs that can be observed together with many vines. If one is interested in propagation or hybridization of plants, there will be someone at the greenhouses to explain the extensive programs being carried out in both departments. The Library and Herbarium in the Administration Building are among the world's best when it comes to the study of ornamental woody plants, and visitors are always welcome.

For those interested in hedges, there is a demonstration plot of 115 different types maintained in the experimental grounds. Not all plants make good hedges, but in this demonstration plot

(Continued on Page 34)

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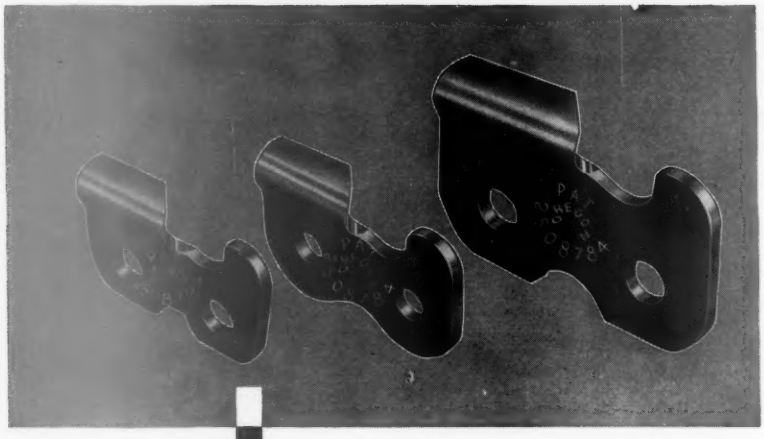
Modern Practices

(Continued from Page 17)

Wood rot diseases are very difficult if not impossible to control since there is no practical way of determining when all of the fungus infected wood has been removed. Removal of the decayed wood and disinfection of the exposed wood does not insure elimination of the disease because many wood-rotting fungi penetrate the wood from a few inches to several feet beyond the limits of visible decay. To treat cavities resulting from wood rot it is advisable to remove as much of the rotting wood as possible or practicable, avoid injuring the living bark and wood as much as possible, where feasible add to the physical strength of the tree, and disinfect and seal the exposed wood to protect against fungi and insects. The treatment should result in a reasonable degree of durability and the treated area should be acceptable in appearance.

Fluxing or bleeding of wounds, especially of elms, caused by wetwood can be eliminated by tapping the trees to remove the gas and sap that have accumulated in the diseased wood. Fluxing wounds where branches have been removed, can usually be drained by boring a hole three-eighths to one-half inch in diameter, 6 to 14 inches directly below the fluxing region. Fluxing cracks in trunks and in branch crotches may or may not respond to the same treatment. The crack in the wood may not be directly behind the fluxing area in the bark. It may be so located that a hole bored directly beneath the bark crack will miss the wood crack, and proper drainage will not result. As a rule it is best to bore the hole to one side and about 6 to 14 inches below the fluxing crack. The hole should be directed toward the probable location of the crack in the wood or toward the center of the heartwood. Drain holes should have sufficient slant to allow the wetwood sap to flow out, and they should extend through the heartwood to within a few inches of the bark on the opposite side of the trunk. A short piece of threaded pipe or conduit pipe should be inserted in the drain hole only far enough to be firm to carry the dripping sap away from the trunk and buttress root. If the pipe penetrates water-soaked wood, proper drainage will not result. Pipe of proper size to fit the drain hole should be used to avoid splitting the wood. These pipes should be examined occasionally and any accumulated slime found clogging the pipes should be removed with a piece of wire.

A maintenance program to care for trees after the initial work has been done should insure better protection to the trees, greater satisfaction to the owner, and more permanent work for the arborist. In this type of program wounds on treated trees should be examined once or twice each year to see that callusing is progressing satisfactorily and that the treatment is effective in protecting against excessive drying and invasion by diseases and insects. Wound dressings that have checked or peeled should be renewed or replaced. Trees with fluxing wounds should be treated to remove the sap and gas that have accumulated in the diseased wood.



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Dow Names Ohioan

Charles L. Beckwith, formerly connected with the Department of Botany and Plant Pathology of the Ohio State experiment station at Wooster, Ohio, has been named as the new agricultural chemicals sales representative of The Dow Chemical Company in the state of Ohio.

A graduate of Kent State University, Beckwith became connected with Dow in October, 1951, at which time he entered an extensive training course at the home office, Midland, Michigan. Upon completion of the course, he was transferred to the Cleveland office. During his work at Wooster, he specialized in potato and tomato disease control.

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Industrial Brush Killer

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Weedone Industrial Brush Killer. The "50-50" product—2 pounds of 2,4-D acid and 2 pounds of 2,4,5-T acid in every gallon. Contains the more powerful, low-volatile butoxy ethanol ester. Safer to use near susceptible plants. This is the formula for mixed stands of brush—the finest general-purpose brush killer available.

Weedone Brush Killers are not just laboratory mixtures formulated to keep pace with the trend in modern brush control—they *set* the trend. They are made by the originators of 2,4-D and 2,4,5-T brush and weed killers, who have had years of experience in the field—experience for which there is no substitute. Our products are the result of experimental spraying in a vast acreage of brush with hundreds of different formulations of 2,4-D and 2,4,5-T. From the start, progress reports have shown the butoxy ethanol esters to be outstanding in effectiveness, stability and low volatility.

For special brush problems such as brambles, Osage orange, poison ivy, mesquite and certain oaks, we recommend Weedone 2,4,5-T. It contains the indispensable butoxy ethanol ester—the low-volatile ester that gives more kill to the ounce.

Caution. Do not be confused by conflicting claims on low-volatile esters. Make certain you buy the butoxy ethanol esters. Before you buy any substitute low-volatile ester, check with the U.S. Department of Agriculture or local authorities for experimental data.

Basal spraying of growing plants. Controls drift. Also more effective on certain resistant species. In some cases this method is replacing foliage spraying. Basal spraying is the accepted practice on dormant plants.

Stump treatment. For use on cut stumps over 4 inches in diameter. Follows cutting or at any time during year. Stops all suckering.

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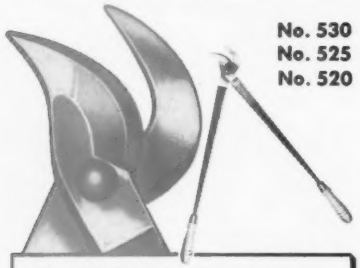

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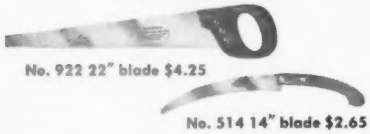

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The Cleveland Maple

Several years ago this beautiful and functionally shapely Norway Maple selection was presented to the readers of TREES Magazine in its summer dress. Here it is shown in winter to give readers a close look at the strong semi-upright branching habit that gives the Cleveland Norway Maple its beautiful upright oval form. This tree can be used in lesser and smaller spaces than the Irish Norway pictured on page 10.

VISIT OUR BOOTH AT THE NATIONAL SHADE TREE CONFERENCE AT BOSTON. YOU WILL SEE THE LATEST AND FINEST IN TREE SURGERY EQUIPMENT.

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Arnold Arboretum

(Continued from Page 28)

one can find many good ones (and some not so good) all being clipped annually for general study and observation by the gardening public.

And, after visiting these areas, if anyone is interested in seeing the nursery areas, these are in Weston about thirteen miles from the Arboretum. Here are growing nearly 2000 additional kinds of plants together with hundreds of new hybrid seedlings. Also on these 150 acres in Weston are the ground cover demonstration plots where over 100 kinds of ground covers are being grown in small 6' x 6' plots for study and comparison. Many of these have only been set out in the last year so all are not yet as well grown as might be hoped for; but, as time goes on, it is here that much can be learned about the performance of many plants used for ground cover purposes in this area.

A day at the Arboretum should be well worth while. In its eighty years it has been continuously introducing new plants to American gardens—well over 3000 of them. New ones are still coming along as a result of planned hybridization, the importation of seeds from all over the world, and the introduction of plants from European sources. The thirty-five following trees, all introduced by the Arboretum, will serve to indicate a small cross section of what has been done in the past. An inspection of the collections at convention time may aid in giving some idea of what may be forthcoming in the future.

Thirty-five Other Trees Introduced by the Arnold Arboretum and their Approximate Locations

Age of oldest tree in parentheses

Plant	*Location*	*Age*
Acer ginnala	Maple collection near shrub collection	(49)
Acer griseum	Maple collection and on Bussey Hill	(45)
Carpinus betulus fastigiata	Hornbeam collection near Bussey Brook	(70)
Carpinus cordata	Hornbeam collection near Bussey Brook	(60)
Carpinus japonica	Hornbeam collection near Bussey Brook	(37)
Celtis bungeana	On right of road at end of lilacs	(69)
Cornus kousa chinensis	On left of drive beyond lilacs	(44)
Davidia involucrata	Two trees on Bussey Hill near great pines	(40)
Evodia hupehensis	Bussey Hill near Cedrus libani	(17)
Fagus sylvatica fastigiata	Among beeches near rhododendrons	(38)
Ilex pedunculosa	At far end of path along Centre St., back of hickories	(54)
Magnolia kobus borealis (small tree)	Near Administration Building	(12)
Magnolia loebneri "Merrill"	By Administration Building	(13)
Magnolia salicifolia	In azalea planting across drive from maples	(24)
Malus arnoldiana	Peter's Hill between drive and Bussey St.	(71)
Malus baccata mandshurica	Between drive and Bussey St. at base of Peter's Hill	(67)
Malus dawsoniana	Peter's Hill between drive and Bussey St.	(48)
Malus hupehensis	Between drive and Bussey St. at base of Peter's Hill	(67)
Malus "Dorothea"	At base of Peter's Hill near RR tracks	(10)
Malus "Katherine"	At base of Peter's Hill near RR tracks	(15)
Malus pumila niedzwetzkyana (small plant)	At base of Peter's Hill by RR tracks	(9)
Malus toringoides	Bussey Hill	(47)
Metasequoia glyptostroboides	Centre Street path—rare plants	(4)
Phellodendron amurense	Along drive beyond Administration Bldg.	(78)
Picea asperata	Bussey Street bank	(41)
Picea glauca conica	In dwarf conifer bed	(30)
Picea omorika	Top of hill in Conifer collection	(66)
Pinus strobus fastigiata	On far side of Bussey Brook across from Mountain laurel	(55)
Prunus "Hally Jolivette"	By Forest Hills Gate	(8)
Prunus incisa	Near Forest Hills Gate	(40)
Prunus sargenti	Bank by Administration Building	(30)
Prunus subhirtella	Near Forest Hills Gate	(27)
Prunus yedoensis (small plant)	At end of Wisteria arbor	(28)
Pyrus ussuriensis	By Forest Hills Gate	(34)
Sorbus alnifolia	By pond near Shrub Collection	(56)

An Elm Tree and Runaway Freight Cars

On May 18, 1952, there was a pile up of 28 Chesapeake and Ohio freight cars in Sawyer, Michigan, causing a lot of damage to private property in the village. Townspeople are giving great credence to the fact a large elm tree averted much more serious property destruction in the town. The first derailed car hit this elm tree and although the tree was ground flat by the impact it slowed the first car which in turn shunted the other 27 cars into a pile up close to the tracks. Except for this tree the cars may have plowed further into the town and caused much greater property destruction.

This was a news item in the News Palladium newspaper dated Sawyer, Michigan, May 21, 1952.

Maple "Measles" Worry Owners

Silver maple trees that look as if they have measles are worrying some home owners—but worry probably is more serious than actual tree damage.

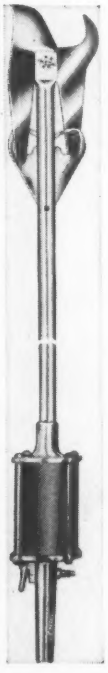
"Maple bladder galls" is the correct name for numerous little bumps appearing on silver maple leaves this spring. T. H. Parks, extension entomologist, Ohio State University, said these galls seldom cause serious damage. Their appearance attracts owners' attention but trees keep right on growing.

Galls appear on the upper surface of leaves, are globular in shape, vary in size and are green when they first form. Later they turn red and then almost black. They are caused by tiny mites, too small to be seen without the aid of a powerful glass.

These mites live over winter on twigs of the tree, crawl to the leaves when new growth begins and feed on the under surface of leaves. The galls develop as a result of the feeding.

Parks said damage is so small that most authorities question the value of control measures. If home owners do not like the appearance of galls on leaves, however, they should spray trees before growth starts in the spring.

A spray of one part liquid lime-sulfur to 8 parts water, applied early in the spring will kill overwintering mites.



Labor Shortage?

Put three skilled men on your payroll for $100 per yr.

Henry No. 500
Silver Giant
POWER SHEAR

Mechanical line clearance, brush removal, pruning and grubbing.

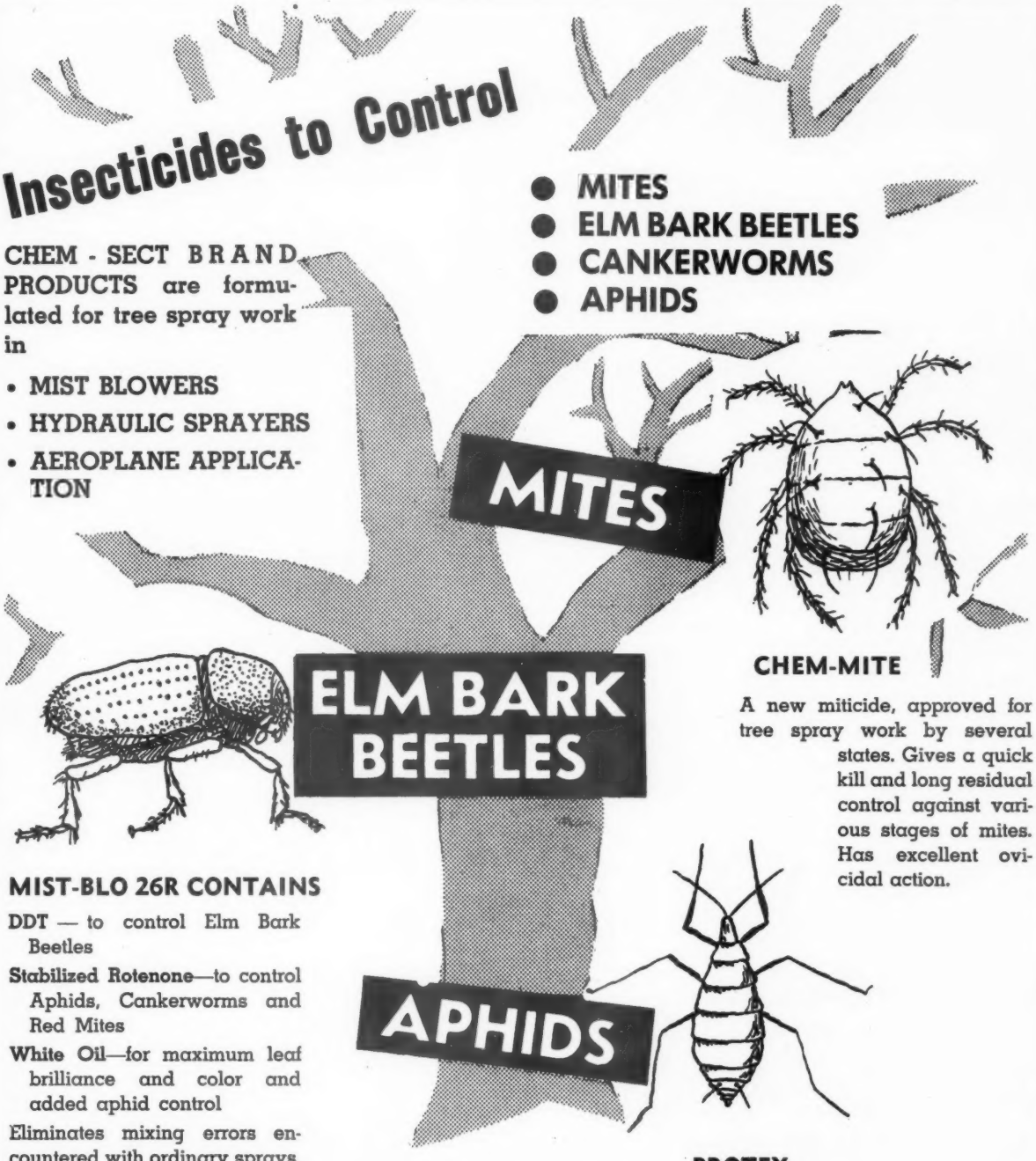
The J. T. Henry Mfg. Co.
Homden, Conn.
Finest Shears Since 1860

Insecticides to Control

- MITES
- ELM BARK BEETLES
- CANKERWORMS
- APHIDS

CHEM - SECT BRAND PRODUCTS are formulated for tree spray work in

- MIST BLOWERS
- HYDRAULIC SPRAYERS
- AEROPLANE APPLICATION



CHEM-MITE

A new miticide, approved for tree spray work by several states. Gives a quick kill and long residual control against various stages of mites. Has excellent ovicidal action.

MIST-BLO 26R CONTAINS

DDT — to control Elm Bark Beetles

Stabilized Rotenone—to control Aphids, Cankerworms and Red Mites

White Oil—for maximum leaf brilliance and color and added aphid control

Eliminates mixing errors encountered with ordinary sprays. MIST-BLO 26R is a completely prepared spray.

PROTEX

A proven stabilized rotenoid concentrate

- Gives quicker kill
- Better spreading
- Superior Wetting
- Greater adhesiveness

Compatible with usual insecticide concentrates such as DDT, Chlordane, Pyrethrum, etc.

CIC

chemical insecticide corporation

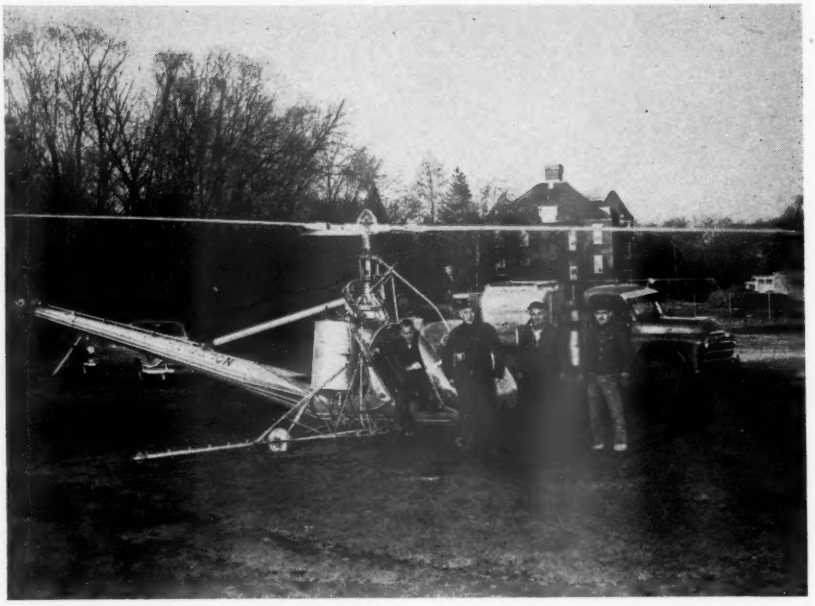
57—13th Street Brooklyn 15, N. Y.

Trees...

Andover Sprays By Helicopter

The Andover newspaper of former years always carried the following quotation on the front page: "Andover a patriotic, sober, conservative New England town." Andover tends to be conservative today but its Tree Warden G. Richard Abbott carries out progressive measures despite opposition from the conservatives.

He has pressed ahead for modern equipment in the tree department, good trucks, chain saws, aero-mist sprayer and this year has brought into service the helicopter for spraying the big trees of the town.



Andover Tree Department crew at attention in the early morning (L. to R.) John Lynch, Dick Abbott, Jimmie Buss, Sr. and Jimmie Buss, Jr.

Andover has over 6,000 public elm trees on its streets and many thousand more on private property. In a fight to retard the Dutch elm disease and save the grand old elm trees of the town an aero-mist sprayer is used in spraying from the ground, while a helicopter sprays the trees from overhead. Tree Warden Dick Abbott has advocated this practice for several years without any action being taken. This year he decided to use his regular funds to bring in a helicopter.

The helicopter starts at daybreak and sprays for about three hours while traffic is light and before any wind develops. In April over 500 trees were sprayed in this time with a 12% D.D.T. emulsion. Plans are underway to apply a 6% D.D.T. emulsion in July with a mitecide being added. Pine oil is added as an odorant when spraying over heavy residential areas. The pine oil overcomes the oil smell and gives a pleasant odor for some time after spraying.

Automobile owners are warned not to park cars under or near public trees during spraying operations in their district. Full cooperation has been received from the public and much favorable comment has been expressed as to the efficiency of the work.

J. H. J.

• Hardie high pressure shade tree sprayers are available in a wide range of standard and custom - built models, delivering up to 80 gpm at 1000 psi.

• The Hardie Concentrate Mist Shade Tree Sprayer is an advanced air blast unit that features new ease of control and a very wide range of performance.

Hardie sprayers have established the standards of efficiency and dependability in shade tree pest control for many years. Whatever your requirements may be—look to Hardie, as always.

" a whale of a sprayer!"

THE HARDIE MANUFACTURING COMPANY
HUDSON, MICHIGAN

3825 Sante Fe Ave., Los Angeles 58, Calif.
1435 N. W. Northrup St., Portland 9, Oregon
C. W. Lewis & Son, Ltd.,
Grimsby, Ontario, Canada
Export Dept. Detroit 26, Mich.

HARDIE
PEST CONTROL EQUIPMENT
• SOLD AND SERVICED ALL OVER THE WORLD

BIG TREE MOVER
Handles up to 12-inch trees

- "Rocks back" for easy loading and unloading.
- "Rocks forward" for balanced load.
- Two sizes . . . fits any standard truck chassis.
- Superstructure removable for other truck use.
- Proved in use for years by nurseries and park departments all over the United States.

Write for detailed specifications and prices.
Sold on terms if desired.

Williams & Harvey Nurseries
P. O. Box 7068, Country Club Station,
Kansas City 2, Mo.

ARBORICULTURAL SUPPLIES

- Pruning Tools
- Bracing Material
- Tree Compounds

Write for 72-Page Catalog

A. M. Leonard & Son
Est. 1885 Piqua, Ohio

PLANT AMERICA—WISELY

BUFFALO TURBINE...
The Dependable Name in Mist-Spraying

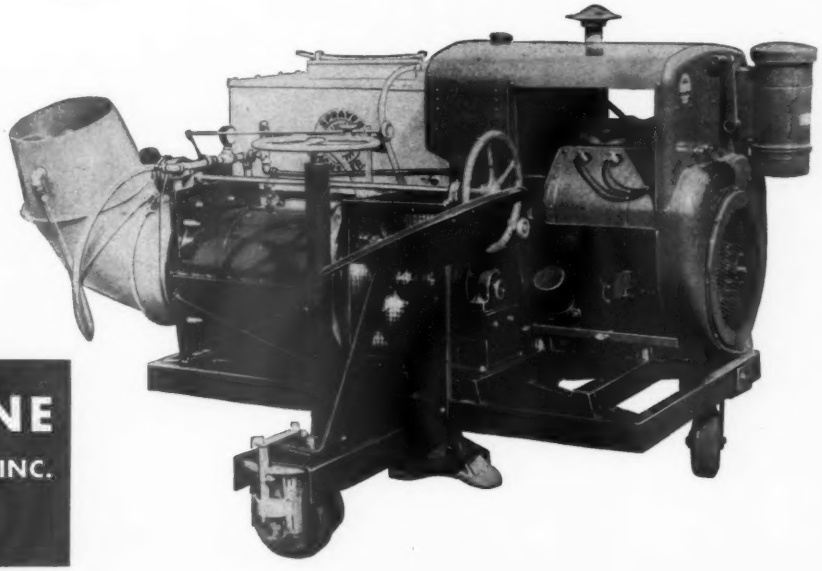
The majority of people who have charge of fly, mosquito and shade tree pest control pick Buffalo Turbine Mist-Sprayers to do the job. This is convincing evidence that Buffalo Turbines do the job better, faster and at less cost.

High velocity turbulent air delivered by Buffalo Turbine's axial flow blower creates a concentrated mist that thoroughly penetrates the thickest foliage. Its great range (over 100 ft. vertically and 200 ft. horizontally) reaches the tallest trees. Complete maneuverability in all directions permits thorough coverage at the rate of ten acres per hour—one man operated.

Features:

1. Uses all standard sprays, dusts, concentrates singly or in combination.
2. Uses only 10% of water required by conventional rigs — less weight and fewer stops.
3. Uses up to 50% less control materials—air, not water, is the carrier.
4. Nozzle velocity controlled by engine speed.
5. Spray and dust density easily controlled.
6. Round and fish-tail nozzles standard.

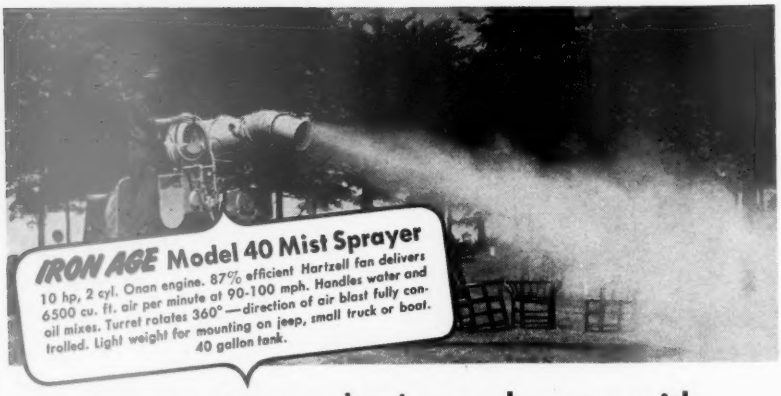
There are four Buffalo Turbine models to choose from: turntable mounted for truck bed (shown), skid, trailer type and for mounting on jeep with adapter for power take off.



Our New England distributor, Frost Insecticide Co., Arlington 74, Mass. (just outside Boston), would like to have you drop in and inspect the Buffalo Turbine Mist-Sprayer while you're attending the National Shade Tree Conference.

Write Dept. T-3 for complete information.

BUFFALO TURBINE
AGRICULTURAL EQUIPMENT CO., INC.
Gowanda, New York


IRON AGE Model 40 Mist Sprayer
10 hp, 2 cyl. Onan engine. 87% efficient Hartzell fan delivers 6500 cu. ft. air per minute at 90-100 mph. Handles water and oil mixes. Turret rotates 360°—direction of air blast fully controlled. Light weight for mounting on jeep, small truck or boat. 40 gallon tank.

PROTECT trees, shrubs and grass with

IRON AGE MIST SPRAYER!

SEE that terrific blast of misted concentrate? There's 6500 cubic feet of it being delivered every minute . . . at 90 to 100 mph . . . saturating every tree, bush and blade of grass to spell instant death to harmful insects! Complete misting of concentrate, either in oil or water, is attained by injecting exactly the right amount of mix through highly efficient spray jets directly into the center of high velocity air stream! Spray jets can be changed quickly to alter droplet size. Easily reaches tops of 90-foot trees and does not defoliate at close range. Light weight permits easy mounting on jeep, small truck or boat.

For complete information, write: A. B. FARQUHAR CO., 2622 Duke St., York, Pa. Branches in Columbus, Ga., Palo Alto, Calif., and Dallas, Texas.

Farquhar
IRON AGE Division of THE OLIVER CORPORATION
YORK, PA.
POTATO AND VEGETABLE PLANTERS • TRANSPLANTERS
SPRAYERS • DUSTERS • POTATO DIGGERS • WEEDERS
MANURE SPREADERS • CONVEYORS • JUICE PRESSES

PLANT AND SPRAY THE IRON AGE WAY

HKP
PORTER PRUNERS
Finest, Best-cutting pruners you can buy!
Professional tree men know you can't beat Porter Pruners for easy cutting and long wear. Take Porter Pole Pruners, for instance. Rugged trouble-free tools that give years of constant service with no annoying replacements. Cut up to 1" green wood. Available with solid or jointed poles.
Or take Porter Foresters. Cut up to 2" green wood. Great for year 'round cutting, pruning, root-cutting and brush clearance. Exclusive power slide shift for greatly increased power on tough cuts.
And ask about DuraCut and DuraShear Porter's sensational one-hand pruner values. See your supplier now and send for catalog showing the complete Porter Pruner line.
DURASHEAR (shear type)
DURACUT (anvil type)
H. K. PORTER, INC., Somerville 43, Mass.

Forest Types

(Continued from Page 12)

Quercus borealis, Quercus ellipsoidalis, Carya ovata, Carya cordiformis, Ulmus americana, Ulmus fulva, Celtis occidentalis, Ostrya virginiana, Malus ioensis, Prunus serotina

constitute more than 50% of the forested area:

NORTHOAK FOREST

Examples: Most forests in Illinois and southern Wisconsin north of the Kankakee-Davenport line.

Where *Pinus strobus* and *Fagus grandifolia* are absent.

and

Acer saccharum, Acer nigrum, Quercus bicolor

constitute more than 50% of the forested area:

MAPLE-OAK FOREST

Example: Higinbotham Woods, Joliet, Ill.

Where species of *Crataegus* not serving as an understory constitute more than 50% of the forested area:

HAWTHORN FOREST

Example: Schiller Woods, Cook Co., Ill.

Where *Pinus strobus* and *Fagus grandifolia* are absent

and

Quercus ellipsoidalis is absent, or, if present, is dominated by *Q. velutina*

and

Both *Carya tomentosa* and *Carya texana arkansana* are not present (tho one of them may be present)

and

Quercus alba, Quercus macrocarpa, Quercus borealis, Quercus velutina, Juglans nigra, Carya ovata, Carya cordiformis, Ulmus americana, Ulmus fulva, Celtis occidentalis, Malus ioensis, Prunus serotina

constitute more than 50% of the forested area:

CENTRAL FOREST

Where *Quercus falcata* and varieties and *Liquidambar styraciflua* are absent.

and

Carya laciniosa, Populus deltoides, Betula nigra, Quercus palustris, Celtis occidentalis, Morus rubra, Platanus occidentalis, Acer saccharinum

constiute more than 50% of the forested area:

GRAND RIVER FOREST

Example: Pershing State Park, Mo.

Where *Gleditsia triacanthos* constitutes more than 15% of the forested area

and

Gleditsia triacanthos, Ulumus americana, Celtis occidentalis, Quercus imbricaria, Quercus macrocarpa, Crataegus mollis, Asimina triloba

constitute more than 50% of the forested area:

OSAGE SAVANNA

Examples: Loose Park, Kansas City,

Mo.; southern part of Mt. Washington Cem. Woods; Shawnee Mission State Park, Kan.

Where either *Carya tomentosa* or *Carya texana arkansana* or both are present

and

Carya tomentosa, Carya texana arkansana, Quercus alba, Quercus stellata, Quercus velutina, Quercus marilandica, Quercus muehlenbergii

constitute more than 50% of the forested area:

OZARKIAN FOREST

Examples: Uplands of the Ozark Mountains.

Where *Pinus echinata* is present

and

Pinus echinata, Liquidambar styraciflua, Nyssa sylvatica, Quercus alba, Quercus velutina, Ulmus alata

constitute more than 50% of the forested area:

WASHITA FOREST

Example: Hot Springs National Park.

Where at least three of the following four species are present:

Carya laciniosa, Quercus shumardii, Quercus falcata and varieties, *Liquidambar stryaciflua*

and

Carya laciniosa, Quercus shumardii, Quercus falcata and varieties, *Quercus macrocarpa, Ulmus americana, Liquidambar styraciflua, Platanus occidentalis*

constitute more than 50% of the forested area:

UPPER MISSISSIPPIAN FOREST

Example: NE part of Big Oak Tree State Park, Mo.

Where *Taxodium distichum, Salix nigra, Populus deltoides, Quercus lyrata, Celtis laevigata, Planera aquatica, Forestiera acuminata*

constitue more than 50% of the forested area:

LOWER MISSISSIPPIAN FOREST

Example: Low bottoms of Big Oak Tree State Park, Mo.

Where *Pinus taeda* constitutes more than 25% of the forested area

and

Pinus taeda, Pinus echinata, Quercus stellata, Quercus nigra

constitute more than 50% of the forested area:

LOBLOLLY FOREST

Example: Levi Wilcoxon Forest, Ashley Co., Ark.

Karl's Klambake
Tucks Point
August 20th

light, lacy shade

of graceful MORAINE LOCUST TREE

encourages beautiful lawns

For trouble-free beauty with minimum care, replace diseased or storm-damaged shade trees with new fast-growing Moraine Locust trees. The dark green foliage of lacy compound leaves makes delicate shadows on the lawn, allowing enough sunlight to filter through to encourage healthy growth of lawn grasses.

As a stately specimen tree of tidy habits . . . as a graceful accent in a border or background planting . . . as a frame for a scenic vista, this vigorous new shade tree will add beauty and value to your property. The Moraine Locust (Pat. No. 836) grows tall and vase-shaped as it matures, making a screen that protects the privacy of your garden without shutting away the breeze.

This new shade tree, developed by The Siebenthaler Company, is thornless and seedless. Its resistance to disease and insect damage has been established by 36-year records. Absence of seed pods and the quick crumbling of Moraine Locust leaves make this tree ideal from the garden maintenance standpoint. (There are no untidy pods to dispose of, no heavy leaves to pile up.)

If you have a place for a new shade tree, you couldn't make a wiser choice than the Moraine Locust. Ask your local nurseryman about Moraine Locust shade trees for planting this fall.

THE **Siebenthaler** COMPANY

3001 CATALPA DRIVE • DAYTON 5, OHIO

Garden Cemetery

(Continued from Page 15)

It may be seen, in its declining years in the right background of the accompanying picture of Asa Gray Garden, which is a landscaped area that Mount Auburn maintains for the enjoyment of its lot owners. In addition to about forty kinds of hybrid tea and floribunda roses, this garden features, besides a choice collection of peonies, daylilies, iris, chrysanthemums and many other perennials, sixteen varieties of named hybrid rhododendrons, twelve kinds of azaleas and several uncommon specimen trees, such as the Umbrella Pine, Short-leaf White Pine, *Styrax japonica* or Snowbell, Kobus magnolia, Helen Borchers flowering peach, and Waterer laburnum.

With the spread of its fame beyond our own country, Mount Auburn became a show place to which famous visitors from abroad, like Charles Dickens, Emperor Dom Pedro of Brazil, and the Prince of Wales (the future Edward VII) were taken. In 1860 the latter planted a purple beech and a yellowwood tree in the area fronting Bigelow Chapel. The beech is still flourishing and is shown in the accompanying photograph.

As a part of its horticultural program, Mount Auburn hopes that eventually all of the more desirable kinds of trees and shrubs that do well in this climate will be represented in the cemetery grounds. At the present time there may be seen there over 350 kinds of deciduous trees, of which 200 represent species, and more than 125 kinds of evergreen trees, including 67 species. By families, there are 38 kinds of flowering crabapples, 39 cherries, 24 hawthorns, 24 magnolias, 21 maples, 19 oaks, 18 elms, and 14 lindens. Listed among the evergreen trees and shrubs are 39 kinds of junipers, 32 spruces, 31 pines, 27 yews, 15 firs, and 14 hemlocks. Shrubs and trees that provide food or shelter for the wild birds are particularly featured, and the whole cemetery is maintained as a sanctuary, where feeding and the supplying of birdhouses and bird baths add to the natural allurements. As a result, no area in the general vicinity of Boston holds greater attraction to the bird lover, particularly during the migration of the warblers in May.

A beautiful Fernleaf Beech over 70 feet tall at Mount Auburn Cemetery.

CONTROL INSECTS WITH PRATT'S SPRAYS

Pratt's Sprays are formulated for use in mist or hydraulic sprayers to give the greatest degree of safety and effectiveness.

PRATT'S SUMMER SPRA-OIL—A miscible 97% white oil type summer oil spray. For use as an ovicide in the control of insect eggs, scale crawlers, aphis and red spider. Used in combination with DDT—Nicotine—arsenate of lead—miticides—D-X Insect Spray.

D-X INSECT SPRAY—One of the most effective sprays for controlling sucking and chewing insects. Contains pyrethrum-rotenone and piperonyl cyclonene. Compatible with Summer Oil—DDT—arsenate of lead and standard fungicides.

PRATT'S NICOTINE SPRAY—A contact insecticide containing 20% free nicotine in a vegetable oil base. Contains own spreader and sticker.

PRATT'S E-25% DDT—An emulsifiable DDT solution for use in water—DDT sprays.

PRATT'S S-30% DDT—A DDT solution in a solvent for use in oil—DDT sprays.

See Jim Shafer, Space 29, National Shade Tree Conference

B. G. PRATT CO. Insecticides Hackensack, N. J.

McCulloch Markets New Chain Saw Oil

McCulloch Chain Saw Oil, a new brand of motor oil especially compounded for use in gasoline-powered chain saws, was announced last month by McCulloch Motors Corporation, Los Angeles. The new oil is designed to prevent carbon formation on the plugs, rings, ports, and heads of two-cycle engines, thereby increasing performance and reducing maintenance.

Another advantage claimed for the new oil is economy, since the recommended mixture of this oil with gasoline is only one part in twenty.

The new oil is marketed nationally through McCulloch dealers and distributors, for use in McCulloch chain saws, Earth Drills, and pumps. It is equally effective for all other types of two-cycle engines, including outboard motors, lawn mowers, and other makes of chain saws.

Our Business

(Continued from Page 22)

handled so as to earn us a profit or else we would be in business only a very short time.

Through my consulting services to smaller companies, I have learned that most of them do not keep sufficient records to know what their business is costing them to run. They charge their work out at a certain rate per hour and pay their men a somewhat smaller amount and figure their profits as the amount which they pay the men subtracted from the amount they charge.

This line of thinking has put many a fellow out of a job or has kept him operating without modern equipment and without building reserves against the replacement of the equipment which he might now own. Of course, many cannot afford full time bookkeepers and office girls. This work has fallen on the shoulders in many cases of the operator's wife, relatives or a part time bookkeeper.

I believe we all recognize that a simple form of record keeping adaptable to our type of business should be introduced. I think this is another very important work in which the Arborist Societies in the different states can help their members. I am not a public accountant myself and know very little about bookkeeping. I do know, however, that a man must know what it costs him to operate before he can intelligently charge for his work. A simple system should be developed that would enable the smallest operator who keeps his own books and can only devote a minimum amount of his time to know what it costs him to run his own automobile, his trucks, his spray rigs, his power saws, and power equipment.

It should enable him to know what it costs him for insecticides, fertilizers, miscellaneous supplies and small tools. He should be able to tell at the end of a year at a glance what the cost was for wages, pay roll taxes, and insurance. He should know what the cost was for overhead items such as auditing, clerical work, office supplies, telephone, dues and subscriptions, advertising and promotion, rent and all the other little items that eat into the net profit of a going business.

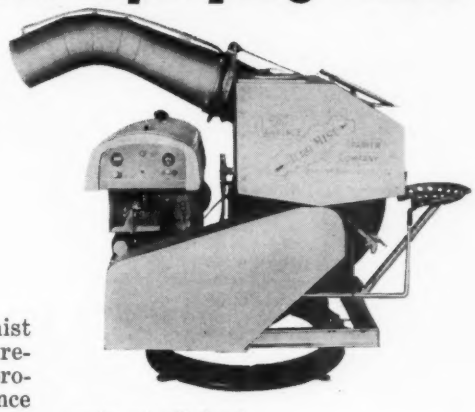
Then, on the other hand, he should have a summary of what he has charged out in his bills for labor, for materials, for supplies, for his trucks, for his spray rigs, and power equipment. Incidentally, he should know how much of his work was tree work, how much was spraying, how much was feeding, and how much was landscape work. If he has these figures, it is possible he may save something on his insurance. Naturally, you all keep a pay roll book since your

(Continued on Page 42)

Cut Shade Tree Spraying Time

with an

AERO-MIST L-80 SPRAYER



This fast, easy-to-operate mist sprayer is unequaled for best results in shade tree spraying programs. The versatile Lawrence L-80 handles all formulations . . . gets at all leaf-eating insects and fungus infections . . . thoroughly covers the highest trees with penetrating mist spray . . . provides lowest operating costs in labor and materials.

COMPARE THESE FEATURES

High pressure pump . . . mechanical agitation . . . 42 H.P. water-cooled engine with clutch . . . 360° rotation . . . finger-tip control . . . weighs only 1400 pounds . . . 8,000 c.f.m. at 150 m.p.h.

LAWRENCE AERO-MIST SPRAYER CORP.

3 BANK ROW GREENFIELD, MASS.

Do all These Jobs Electrically with ONAN Portable Electric Plants!

Cut costs, save time, do better work. Use electrical tools on every job beyond the reach of highline power. With electric hedge trimmers, grass clippers, saws, drills, hammers, spades, tampers and other electrical equipment, one man can do the work of several. *You can have electricity available anywhere* with Onan Portable Electric Plants. Mounted on dollies, Onan Electric Plants can be wheeled right to the job. Plenty of plug-in electric power is instantly available. Many lightweight A.C. and D.C. models—400 to 5,000 watts.

Onan PRODUCTS **ELECTRIC PLANTS**

Mail Coupon Today!

Special folder describes all Onan lightweight portable plants.

D. W. ONAN & SONS INC.
7507 University Ave., Minneapolis 14, Minn.
Send FREE FOLDER on Portable Plants.

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Authors and Books

The following books may be ordered from TREES Magazine, Box 5607, Cleveland, Ohio

THE BEST LOVED TREES OF AMERICA, by Robert S. Lemmon. Doubleday & Co., New York. 254 pgs., illus. $3.50.

Here are all the basic facts you want to know about your favorite trees, informally, affectionately, and authoritatively assembled by a famous naturalist.

From among the many varieties which are "native" to the United States, Mr. Lemmon has carefully selected fifty-nine trees which are the most popular all over the country, and he discusses each thoroughly. These range from the graceful Canoe Birch to the Giant Sequoia; from the handsome Douglas Fir of the Pacific Northwest to the Bull Bay or Southern Magnolia. They include such commercially important trees as the Sugar Maple, the Pecan, and the Sassafras.

Mr. Lemmon gives full descriptions, seasonal variations, and most striking characteristics of each of the fifty-nine trees. He tells where and how they grow, explains their blossom, fruit, and root systems, and discusses their various uses to man.

The book is illustrated profusely with vivid photographs picturing the entire year's cycle for each tree. Both readble and comprehensive, it provides a delightful, highly informative addition to the permanent library of every nature lover.

* * * *

MANGO STUDIES Florida Mango Forum, Stuart Daily News, Stuart, Florida. 156 pgs., illus. $4.00.

The many phases of the study and research in the growing of the famous Mango fruit are capably presented in this book by a number of writers each proficient in such fields as: Marketing, Propagation, Varieties, Protection, Mango Recipes.

A complete, well written and interesting book on a fruit of delicious flavor that is rapidly gaining wide favor.

* * * *

FOREST ENTOMOLOGY, by Samuel Alexander Graham. McGraw-Hill Book Co., Inc., New York. 351 pgs., illus. $6.00.

Designed to present the techniques of forest insect control and the underlying principles of forest entomology, this new edition emphasizes the practical and ecological aspects of the subject. Principles are illustrated by a full discussion of representative species selected from each important ecological group of forest insects.

Forest entomology is presented as an integral part of forest practice. Discussions are focused on the ecological principles that are involved in population fluctuations and are therefore universally applicable. Examples of insects illustrating the principles discussed are carefully selected from species currently important. Not intended as a handbook of forest insects, this book presents instead information and principles that are used or can be used by foresters to protect forests against insect ravages.

Old material has been brought up to date by addition of information which has become available. Chapters on chemical control have been entirely rewritten to include a modern presentation of methods of applying insecticides from the air and by means of air blast machines. Valuable synthetic organic insecticides are also considered. New chapters have been added describing methods of forest insect surveys, covering both detection and appraisal of damage. Also included in a chapter on legislative acts that have implemented forest insect control by the states, Federal government, and cooperatively by both public and private agencies. The discussion of silvicultural methods of controlling forest insects has been modernized and expanded.

28th N.S.T.C. Program

(Continued from Page 7)

culture, Trenton, New Jersey

4:30—Adjournment

Evening

6:00—Cocktail Hour—Georgia Room, Mezzanine Floor

7:00—Annual Banquet — Entertainment and Dancing—Ballroom

Friday, August 22

A. M.

—A last look at the Commercial Exhibits

9:00—Trip to the Arnold Arboretum —One of the World's Most Famous Plant Collections

—En route — Visitation of WHDH Transmitter site. Oldest public demonstration of Brush Control—Frank E. Egler, in charge

Asphalt For New Lawns

An overcoat 1/16 inch thick promises new help for starting grass to grow on lawns and slopes.

The method has been developed by Harold M. Smith, a University of Illinois soil scientist, during three years of experiments.

Previously, if a hard rain hit a newly seeded lawn the seed would wash into pockets with an uneven stand of grass resulting.

Or a freshly sown highway shoulder or grass waterway on a farm could quickly wash out and become gullied in a single rainstorm. Seed, fertilizer, topsoil, and labor would all be lost.

Holds Everything

Smith solved the problem by spraying asphalt on the ground surface after preparation and seeding. Not only did a 1/16 inch crust hold everything, but seedings came up from one to two weeks earlier, he noted.

Two special asphalts have been found useful for the purpose. A liquid type, trade-named Terolas, is produced by the Shell Oil Co. The other, called cutback material as asphalt mulch, is put out by the Lion Oil Co. Ordinary asphalt proved unsatisfactory, Smith added.

He said either of the new products is superior to straw mulch, the usual material for protecting new seedings.

Straw May Smother

A layer of straw heavy enough to prevent erosion may smother the germinating seed. A lighter layer could let the seedlings come through, all right, but might not prevent erosion. Also, straw mulch is subject to blowing, to fire in dry weather, and to introducing weed seeds into the planting.

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Our Business

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